

# SEQUENCE LISTING

<110> Gramatikova, Svetlana  
Hazlewood, Geoff

<120> PHOSPHOLIPASES, NUCLEIC ACIDS ENCODING THEM  
AND METHODS FOR MAKING AND USING THEM

<130> 564462004201

<140> 10/511,875

<140> 2003-04-21

<150> PCT/US03/12556

<151> 2003-04-21

<150> 60/374,313

<151> 2002-04-19

<160> 106

<170> FastSEQ for Windows Version 4.0

<210> 1

<211> 849

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 1

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gaggataagc	ataatgaggg	gattaactct	catttggtgga	ttgtaaatcg	tgcaattgac	180
atcatgtctc	gtaatacaac	gattgtgaat	ccgaatgaaa	ctgcattatt	aaatgagtgg	240
cgtgctgatt	tagaaaatgg	tatttattct	gctgattacg	agaatcctta	ttatgataat	300
agtacatatg	cttctcactt	ttatgatccg	gatactggaa	caacatatat	tccttttgcg	360
aaacatgcaa	aagaaacagg	cgcaaaatat	tttaaccttg	ctgggtcaagc	ataccaaaat	420
caagatatgc	agcaagcatt	cttctactta	ggattatcgc	ttcattatatt	aggagatgtg	480
aatcagccaa	tgcatgcagc	aaactttacg	aatctttctt	atccaatggg	tttccattct	540
aaatacgaaa	atthttgttg	tacaataaaa	aataactata	ttgtttcaga	tagcaatgga	600
tatttgaatt	ggaaaggagc	aaaccagaa	gattggattg	aaggagcagc	ggtagcagct	660
aaacaagatt	atcctggcgt	tgtgaacgat	acgacaaaag	attggtttgt	aaaagcagcc	720
gtatctcaag	aatatgcaga	taaatggcgt	gcggaagtaa	caccgggtgac	aggaaaagcgt	780
ttaatggaag	cgcagcgcgt	tacagctggg	tatattcatt	tgtggtttga	tacgtatgta	840
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<210> 2

<211> 282

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(24)

<400> 2

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Pro	Val	Gln	Ser	Val	Val	Phe	Ala	Gln	Thr	Asn	Asn	Ser	Glu	Ser	Pro

			20					25					30				
Ala	Pro	Ile	Leu	Arg	Trp	Ser	Ala	Glu	Asp	Lys	His	Asn	Glu	Gly	Ile		
		35					40					45					
Asn	Ser	His	Leu	Trp	Ile	Val	Asn	Arg	Ala	Ile	Asp	Ile	Met	Ser	Arg		
	50					55					60						
Asn	Thr	Thr	Ile	Val	Asn	Pro	Asn	Glu	Thr	Ala	Leu	Leu	Asn	Glu	Trp		
65				70					75					80			
Arg	Ala	Asp	Leu	Glu	Asn	Gly	Ile	Tyr	Ser	Ala	Asp	Tyr	Glu	Asn	Pro		
			85					90					95				
Tyr	Tyr	Asp	Asn	Ser	Thr	Tyr	Ala	Ser	His	Phe	Tyr	Asp	Pro	Asp	Thr		
			100				105						110				
Gly	Thr	Thr	Tyr	Ile	Pro	Phe	Ala	Lys	His	Ala	Lys	Glu	Thr	Gly	Ala		
		115					120					125					
Lys	Tyr	Phe	Asn	Leu	Ala	Gly	Gln	Ala	Tyr	Gln	Asn	Gln	Asp	Met	Gln		
	130					135					140						
Gln	Ala	Phe	Phe	Tyr	Leu	Gly	Leu	Ser	Leu	His	Tyr	Leu	Gly	Asp	Val		
145					150					155					160		
Asn	Gln	Pro	Met	His	Ala	Ala	Asn	Phe	Thr	Asn	Leu	Ser	Tyr	Pro	Met		
			165					170						175			
Gly	Phe	His	Ser	Lys	Tyr	Glu	Asn	Phe	Val	Asp	Thr	Ile	Lys	Asn	Asn		
		180					185						190				
Tyr	Ile	Val	Ser	Asp	Ser	Asn	Gly	Tyr	Trp	Asn	Trp	Lys	Gly	Ala	Asn		
	195					200						205					
Pro	Glu	Asp	Trp	Ile	Glu	Gly	Ala	Ala	Val	Ala	Ala	Lys	Gln	Asp	Tyr		
	210					215						220					
Pro	Gly	Val	Val	Asn	Asp	Thr	Thr	Lys	Asp	Trp	Phe	Val	Lys	Ala	Ala		
225				230					235					240			
Val	Ser	Gln	Glu	Tyr	Ala	Asp	Lys	Trp	Arg	Ala	Glu	Val	Thr	Pro	Val		
			245					250						255			
Thr	Gly	Lys	Arg	Leu	Met	Glu	Ala	Gln	Arg	Val	Thr	Ala	Gly	Tyr	Ile		
		260					265						270				
His	Leu	Trp	Phe	Asp	Thr	Tyr	Val	Asn	Arg								
	275						280										

<210> 3  
 <211> 852  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 3

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attatgtccc	aaaatacgac	tgttgtgaag	caaaatgaga	cagctctatt	aatgaatgg	240
cgtacggatc	tagagaaagg	catttactct	gcggattatg	aaaaccata	ctatgataat	300
tccacattcg	cttcacactt	ctatgatcct	gattcaggaa	aaacgtatat	tccatttgct	360
aaacaagcaa	agcaaacagg	agcgaaatat	tttaaattag	ctggtgaagc	ttatcaaaat	420
aaagatctga	aaaacgcatt	cttttattta	ggattatcac	ttcactattd	aggggatgtc	480
aaccaaccaa	tgcatgcagc	aaactttact	aataatttcgc	atccatttgg	cttcactca	540
aaatatgaaa	atttcgttga	tacagtgaag	gacaattata	gagtaacgga	tggaaatggc	600
tattggaatt	ggcaaagtgc	aaatccagaa	gagtgggttc	atgcatcagc	atcagcagca	660
aaagctgatt	ttccatcaat	tgtaaatgat	aagacgaaaa	attgggttcct	aaaagcagct	720
gtatcacaag	actctgctga	taaatggcgt	gcagaagtaa	caccgataac	aggaaaacgt	780
ttaatggaag	cgcagcgtgt	tacagctgga	tatatccatt	tatgggttga	tacgtacgtg	840
aataacaaat	aa					852

<210> 4  
 <211> 283  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(24)

<400> 4  
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 Pro Ile Gln Ser Val Ala Phe Ala His Glu Asn Gly His Gln Asp Pro  
 20 25 30  
 Pro Ile Ala Leu Lys Trp Ser Ala Glu Ser Ile His Asn Glu Gly Val  
 35 40 45  
 Ser Ser His Leu Trp Ile Val Asn Arg Ala Ile Asp Ile Met Ser Gln  
 50 55 60  
 Asn Thr Thr Val Val Lys Gln Asn Glu Thr Ala Leu Leu Asn Glu Trp  
 65 70 75 80  
 Arg Thr Asp Leu Glu Lys Gly Ile Tyr Ser Ala Asp Tyr Glu Asn Pro  
 85 90 95  
 Tyr Tyr Asp Asn Ser Thr Phe Ala Ser His Phe Tyr Asp Pro Asp Ser  
 100 105 110  
 Gly Lys Thr Tyr Ile Pro Phe Ala Lys Gln Ala Lys Gln Thr Gly Ala  
 115 120 125  
 Lys Tyr Phe Lys Leu Ala Gly Glu Ala Tyr Gln Asn Lys Asp Leu Lys  
 130 135 140  
 Asn Ala Phe Phe Tyr Leu Gly Leu Ser Leu His Tyr Leu Gly Asp Val  
 145 150 155 160  
 Asn Gln Pro Met His Ala Ala Asn Phe Thr Asn Ile Ser His Pro Phe  
 165 170 175  
 Gly Phe His Ser Lys Tyr Glu Asn Phe Val Asp Thr Val Lys Asp Asn  
 180 185 190  
 Tyr Arg Val Thr Asp Gly Asn Gly Tyr Trp Asn Trp Gln Ser Ala Asn  
 195 200 205  
 Pro Glu Glu Trp Val His Ala Ser Ala Ser Ala Ala Lys Ala Asp Phe  
 210 215 220  
 Pro Ser Ile Val Asn Asp Lys Thr Lys Asn Trp Phe Leu Lys Ala Ala  
 225 230 235 240  
 Val Ser Gln Asp Ser Ala Asp Lys Trp Arg Ala Glu Val Thr Pro Ile  
 245 250 255  
 Thr Gly Lys Arg Leu Met Glu Ala Gln Arg Val Thr Ala Gly Tyr Ile  
 260 265 270  
 His Leu Trp Phe Asp Thr Tyr Val Asn Asn Lys  
 275 280

<210> 5  
 <211> 843  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 5  
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 cataatgaag gagtaagttc tcatattatgg attgtaaaca gagcaattga tattatgtcc 180  
 caaaatacga ctgtggtgaa gcaaaatgag acagctctat taaatgaatg gcgtacgaat 240  
 ttggaggaag gtattttattc tgcagattat aaaaacccat actatgataa ttccacattc 300  
 gcttcacact tctatgatcc tgattcagaa aaaacgtata ttccatttgc taaacaagca 360  
 aagcaaacgg gagcaaagta ttttaaatta gctggtgaag cttatcaaaa taaagatctg 420  
 aaaaatgcag tctttttatctt aggattatca cttcattatt taggggatgt caatcaacca 480  
 atgcatgcag caaactttac taacattttcg catccatttg gcttccactc aaaatatgaa 540  
 aacttcggtg atacagtgaag agacaattat agagtaacag atggagatgg ctattggaat 600  
 tggaaaagtg caaatccaga agagtgggtt catgcatcag catcagcagc aaaagctgat 660

ttcccatcaa ttgttaatga taatacgaaa agttgggttcc taaaagcagc ggtatcacaa	720
gactctgctg acaaatggcg tgctgaagta acaccggtaa caggaaaacg tttaatggaa	780
gcacagcgta ttacagctgg atatattcat ttatggtttg atacgtacgt gaataacaaa	840
taa	843

<210> 6  
 <211> 280  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(24)

<400> 6

Met	Lys	Arg	Lys	Ile	Leu	Ala	Ile	Ala	Ser	Val	Ile	Ala	Leu	Thr	Ala
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Pro	Ile	Gln	Ser	Val	Ala	Phe	Ala	His	Glu	Ser	Asp	Gly	Pro	Ile	Ala
			20					25					30		
Leu	Arg	Trp	Ser	Ala	Glu	Ser	Val	His	Asn	Glu	Gly	Val	Ser	Ser	His
		35					40					45			
Leu	Trp	Ile	Val	Asn	Arg	Ala	Ile	Asp	Ile	Met	Ser	Gln	Asn	Thr	Thr
	50					55					60				
Val	Val	Lys	Gln	Asn	Glu	Thr	Ala	Leu	Leu	Asn	Glu	Trp	Arg	Thr	Asn
65					70				75						80
Leu	Glu	Glu	Gly	Ile	Tyr	Ser	Ala	Asp	Tyr	Lys	Asn	Pro	Tyr	Tyr	Asp
				85					90					95	
Asn	Ser	Thr	Phe	Ala	Ser	His	Phe	Tyr	Asp	Pro	Asp	Ser	Glu	Lys	Thr
			100					105					110		
Tyr	Ile	Pro	Phe	Ala	Lys	Gln	Ala	Lys	Gln	Thr	Gly	Ala	Lys	Tyr	Phe
		115					120					125			
Lys	Leu	Ala	Gly	Glu	Ala	Tyr	Gln	Asn	Lys	Asp	Leu	Lys	Asn	Ala	Phe
	130						135				140				
Phe	Tyr	Leu	Gly	Leu	Ser	Leu	His	Tyr	Leu	Gly	Asp	Val	Asn	Gln	Pro
145					150					155					160
Met	His	Ala	Ala	Asn	Phe	Thr	Asn	Ile	Ser	His	Pro	Phe	Gly	Phe	His
				165					170					175	
Ser	Lys	Tyr	Glu	Asn	Phe	Val	Asp	Thr	Val	Lys	Asp	Asn	Tyr	Arg	Val
			180					185					190		
Thr	Asp	Gly	Asp	Gly	Tyr	Trp	Asn	Trp	Lys	Ser	Ala	Asn	Pro	Glu	Glu
		195					200						205		
Trp	Val	His	Ala	Ser	Ala	Ser	Ala	Ala	Lys	Ala	Asp	Phe	Pro	Ser	Ile
		210					215				220				
Val	Asn	Asp	Asn	Thr	Lys	Ser	Trp	Phe	Leu	Lys	Ala	Ala	Val	Ser	Gln
225					230					235					240
Asp	Ser	Ala	Asp	Lys	Trp	Arg	Ala	Glu	Val	Thr	Pro	Val	Thr	Gly	Lys
				245					250					255	
Arg	Leu	Met	Glu	Ala	Gln	Arg	Ile	Thr	Ala	Gly	Tyr	Ile	His	Leu	Trp
			260					265					270		
Phe	Asp	Thr	Tyr	Val	Asn	Asn	Lys								
		275					280								

<210> 7  
 <211> 963  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

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caacataatg tattttttatt gcctgaatca gtttcttatt ggggtcagga cgaacgtgca 180
gattatatga gtaatgcaga ttacttcaag ggacatgatg ctctgctctt aaatgagctt 240
tttgacaatg gaaattcgaa catgctgcta atgaacttat ccacggaata tccatatcaa 300
acgccagtgc ttggccgttc gatgagtgga tgggatgaaa ctagaggaag ctatttcta 360
tttgtaccgc aagatggcgg tgtagcaatt atcagtaaat ggccaatcgt ggagaaaaata 420
cagcatgttt acgcgaatgg ttgcggtgca gactattatg caaataaagg atttgtttat 480
gcaaaagtac aaaaaggagg taaattctat catcttatca gcactcatgc tcaagccgaa 540
gatactgggt gtgatcaggg tgaaggagca gaaattcgtc attcacagtt tcaagaaatc 600
aacgacttta ttaaaaaataa aaacattccg aaagatgaag tggtatattat tgggtggtgac 660
tttaatgtga tgaagagtga cacaacagag tacaatagca tgttatcaac attaaatgtc 720
aatgcgctta ccgaatatatt agggcatagc tctacttggg acccagaaac gaacagcatt 780
acaggttaca attaccctga ttatgcgcca cagcatttag attatatattt tgtggaaaaa 840
gatcataaac aaccaagttc atgggtaaat gaaacgatta ctccgaagtc tccaacttgg 900
aaggcaatct atgagtataa tgattattcc gatcactatc ctgttaaagc atacgtaaaa 960
taa

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<210> 8  
 <211> 320  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(29)

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 20          25          30
Tyr Pro Asn Asp Phe Lys Leu Leu Gln His Asn Val Phe Leu Leu Pro
 35          40          45
Glu Ser Val Ser Tyr Trp Gly Gln Asp Glu Arg Ala Asp Tyr Met Ser
 50          55          60
Asn Ala Asp Tyr Phe Lys Gly His Asp Ala Leu Leu Leu Asn Glu Leu
 65          70          75          80
Phe Asp Asn Gly Asn Ser Asn Met Leu Leu Met Asn Leu Ser Thr Glu
 85          90          95
Tyr Pro Tyr Gln Thr Pro Val Leu Gly Arg Ser Met Ser Gly Trp Asp
100          105          110
Glu Thr Arg Gly Ser Tyr Ser Asn Phe Val Pro Glu Asp Gly Gly Val
115          120          125
Ala Ile Ile Ser Lys Trp Pro Ile Val Glu Lys Ile Gln His Val Tyr
130          135          140
Ala Asn Gly Cys Gly Ala Asp Tyr Tyr Ala Asn Lys Gly Phe Val Tyr
145          150          155          160
Ala Lys Val Gln Lys Gly Asp Lys Phe Tyr His Leu Ile Ser Thr His
165          170          175
Ala Gln Ala Glu Asp Thr Gly Cys Asp Gln Gly Glu Gly Ala Glu Ile
180          185          190
Arg His Ser Gln Phe Gln Glu Ile Asn Asp Phe Ile Lys Asn Lys Asn
195          200          205
Ile Pro Lys Asp Glu Val Val Phe Ile Gly Gly Asp Phe Asn Val Met
210          215          220
Lys Ser Asp Thr Thr Glu Tyr Asn Ser Met Leu Ser Thr Leu Asn Val
225          230          235          240
Asn Ala Pro Thr Glu Tyr Leu Gly His Ser Ser Thr Trp Asp Pro Glu
245          250          255
Thr Asn Ser Ile Thr Gly Tyr Asn Tyr Pro Asp Tyr Ala Pro Gln His
260          265          270
Leu Asp Tyr Ile Phe Val Glu Lys Asp His Lys Gln Pro Ser Ser Trp

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	275						280						285						
Val	Asn	Glu	Thr	Ile	Thr	Pro	Lys	Ser	Pro	Thr	Trp	Lys	Ala	Ile	Tyr				
	290						295				300								
Glu	Tyr	Asn	Asp	Tyr	Ser	Asp	His	Tyr	Pro	Val	Lys	Ala	Tyr	Val	Lys				
305					310					315					320				

<210> 9  
 <211> 999  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 9

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gcaaatcgtg	cacagcgctt	gccaaacgtc	atatctcaat	taagtgcag	tcctgatgtc	180
attcttatca	gcgaagcggt	tagcagccaa	tcagaatctg	cgttagcgca	acttgctcaa	240
ctttaccctt	atcaaactcc	caatggttggc	gaagactgta	gtggcgctgg	ctggcaaagc	300
ttaacgggta	actgctcgaa	tagccccttt	gtgatccgcg	gtggagtggg	gattttatct	360
aagtacccca	tcattacgca	aaaagcccat	gtgtttaata	acagcctgac	tgatagttgg	420
gattatttag	caaacaaagg	tttcgcttat	gttgaaatag	aaaaacatgg	caaacgttac	480
caccttattg	gcacgcattt	acaagcaacg	catgatggcg	acacagaagc	tgagcatatt	540
gtgagaatgg	gtcaattaca	agagatacaa	gatttcattc	aaagcgagca	aattcacact	600
tctgagccgg	tcattatcgg	cggtgatatg	aacgtagagt	ggagcaagca	atctgaaatt	660
acagatatgc	tcgaagtggg	tcgcagccgt	ctaattttca	acacacctga	agttggctct	720
ttctctgcaa	aacacaactg	gtttaccaaa	gctaacgcct	actatttcga	ctacagctta	780
gagtataacg	acacgctcga	ttatgtactt	tggcatgcag	accataagca	acccaccaat	840
acccagaaaa	tgtagtacg	ttacccaaaa	gcagagcgtg	acttttactg	gcgttactta	900
cgcggaatt	ggaacttacc	ttctggccgt	tattatcatg	atggatacta	taacgaactg	960
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<210> 10  
 <211> 332  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(20)

<400> 10

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His	Ser	Lys	Ala	Asp	Thr	Leu	Lys	Val	Met	Ala	Tyr	Asn	Ile	Met	Gln				
		20						25					30						
Leu	Asn	Val	Gln	Asp	Trp	Asp	Gln	Ala	Asn	Arg	Ala	Gln	Arg	Leu	Pro				
	35						40					45							
Asn	Val	Ile	Ser	Gln	Leu	Ser	Asp	Ser	Pro	Asp	Val	Ile	Leu	Ile	Ser				
	50					55					60								
Glu	Ala	Phe	Ser	Ser	Gln	Ser	Glu	Ser	Ala	Leu	Ala	Gln	Leu	Ala	Gln				
65					70				75						80				
Leu	Tyr	Pro	Tyr	Gln	Thr	Pro	Asn	Val	Gly	Glu	Asp	Cys	Ser	Gly	Ala				
				85					90					95					
Gly	Trp	Gln	Ser	Leu	Thr	Gly	Asn	Cys	Ser	Asn	Ser	Pro	Phe	Val	Ile				
		100					105						110						
Arg	Gly	Gly	Val	Val	Ile	Leu	Ser	Lys	Tyr	Pro	Ile	Ile	Thr	Gln	Lys				
		115					120					125							
Ala	His	Val	Phe	Asn	Asn	Ser	Leu	Thr	Asp	Ser	Trp	Asp	Tyr	Leu	Ala				
	130				135						140								
Asn	Lys	Gly	Phe	Ala	Tyr	Val	Glu	Ile	Glu	Lys	His	Gly	Lys	Arg	Tyr				

145		150		155		160									
His	Leu	Ile	Gly	Thr	His	Leu	Gln	Ala	Thr	His	Asp	Gly	Asp	Thr	Glu
		165		170		175									
Ala	Glu	His	Ile	Val	Arg	Met	Gly	Gln	Leu	Gln	Glu	Ile	Gln	Asp	Phe
		180		185		190									
Ile	Gln	Ser	Glu	Gln	Ile	His	Thr	Ser	Glu	Pro	Val	Ile	Ile	Gly	Gly
		195		200		205									
Asp	Met	Asn	Val	Glu	Trp	Ser	Lys	Gln	Ser	Glu	Ile	Thr	Asp	Met	Leu
		210		215		220									
Glu	Val	Val	Arg	Ser	Arg	Leu	Ile	Phe	Asn	Thr	Pro	Glu	Val	Gly	Ser
		225		230		235									
Phe	Ser	Ala	Lys	His	Asn	Trp	Phe	Thr	Lys	Ala	Asn	Ala	Tyr	Tyr	Phe
		245		250		255									
Asp	Tyr	Ser	Leu	Glu	Tyr	Asn	Asp	Thr	Leu	Asp	Tyr	Val	Leu	Trp	His
		260		265		270									
Ala	Asp	His	Lys	Gln	Pro	Thr	Asn	Thr	Pro	Glu	Met	Leu	Val	Arg	Tyr
		275		280		285									
Pro	Lys	Ala	Glu	Arg	Asp	Phe	Tyr	Trp	Arg	Tyr	Leu	Arg	Gly	Asn	Trp
		290		295		300									
Asn	Leu	Pro	Ser	Gly	Arg	Tyr	Tyr	His	Asp	Gly	Tyr	Tyr	Asn	Glu	Leu
		305		310		315									
Ser	Asp	His	Tyr	Pro	Val	Gln	Val	Asn	Phe	Glu	Phe				
		325		330											

<210> 11  
 <211> 1041  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 11

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ggaacaagt	caggggctat	taacgctctc	attttttcgc	tgggctttac	cattaaagag	180
cagcaggata	ttctcaattc	caccaacttc	agggagttaa	tggacagctc	tttcggattt	240
gtgcgaaact	tcagaaggct	ctggagttaa	ttcgggtgga	accgcggtga	tgtgttttcg	300
gagtgggcag	gagagctggt	gaaagagaaa	ctcggcaaga	agaacgccac	cttcggcgat	360
ctgaaaaaag	cgaagcgccc	cgatctctac	gttatcgga	ccaacctctc	caccgggttt	420
tccgagactt	tttcgcatga	acgccacgcc	aacatgccgc	tgggtggatgc	ggtgcggatc	480
agcatgtcga	tcccgtctct	ttttgcggca	cgcagacttg	gcaaacgaag	cgatgtgtat	540
gtggatggag	gtgttatgct	caactaccgc	gtaaagctgt	tcgacaggga	gaaatacatc	600
gatttgga	aggagaaaga	ggcagcccgc	tacgtggagt	actacaatca	agagaatgcc	660
cgttttctgc	ttgagcggcc	cggccgaagc	ccgtacgttt	acaaccggca	gaccctagcc	720
ctgcggtctg	actgcgagga	agagatcggc	ctgttccgtt	acgatgagcc	gctgaagggc	780
aaacagatca	accgcttccc	cgaatatgcc	aaagccctga	tcggtgcact	gatgcagggtg	840
caggagaaca	tccacctgaa	aagcgacgac	tggcagcgaa	cgctctacat	caacacgctg	900
gatgtgggta	ccacagattt	cgacattaat	gacgagaaga	aaaaagtgt	ggtgaatgag	960
ggaatcaagg	gagcggaaac	ctacttccgc	tggtttgagg	atcccgaagc	taaaccggtg	1020
aacaaggtg	atttggtctg	a				1041

<210> 12  
 <211> 346  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 12

Met	Ala	Ser	Gln	Phe	Arg	Asn	Leu	Val	Phe	Glu	Gly	Gly	Gly	Val	Lys
1				5					10					15	
Gly	Ile	Ala	Tyr	Ile	Gly	Ala	Met	Gln	Val	Leu	Glu	Gln	Arg	Gly	His





aaacccatta agtcctttcac tgactacgct cgacaacttt tcggtgcggt gatgaatgca	840
caggaaaaca ttcattctaca tggcgatgat tgggcgcgca cggctctatat cgatacattg	900
gatgtgggta cgacggattt caatctttct gatgcaacca agcaagcact gattgagcaa	960
ggaattaacg gcaccgaaaa ttatttcgac tggtttgata atccgtaga gaagcctgtg	1020
aatagagtgg agtcatag	1038

<210> 14  
 <211> 345  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 14

Met	Thr	Thr	Gln	Phe	Arg	Asn	Leu	Ile	Phe	Glu	Gly	Gly	Gly	Val	Lys
1				5					10					15	
Gly	Val	Ala	Tyr	Ile	Gly	Ala	Met	Gln	Ile	Leu	Glu	Asn	Arg	Gly	Val
			20					25					30		
Leu	Gln	Asp	Ile	His	Arg	Val	Gly	Gly	Cys	Ser	Ala	Gly	Ala	Ile	Asn
		35					40					45			
Ala	Leu	Ile	Phe	Ala	Leu	Gly	Tyr	Thr	Val	Arg	Glu	Gln	Lys	Glu	Ile
	50					55					60				
Leu	Gln	Ala	Thr	Asp	Phe	Asn	Gln	Phe	Met	Asp	Asn	Ser	Trp	Gly	Val
65					70					75					80
Ile	Arg	Asp	Ile	Arg	Arg	Leu	Ala	Arg	Asp	Phe	Gly	Trp	His	Lys	Gly
				85					90					95	
Asp	Phe	Phe	Asn	Ser	Trp	Ile	Gly	Asp	Leu	Ile	His	Arg	Arg	Leu	Gly
			100					105					110		
Asn	Arg	Arg	Ala	Thr	Phe	Lys	Asp	Leu	Gln	Lys	Ala	Lys	Leu	Pro	Asp
			115				120					125			
Leu	Tyr	Val	Ile	Gly	Thr	Asn	Leu	Ser	Thr	Gly	Tyr	Ala	Glu	Val	Phe
	130					135					140				
Ser	Ala	Glu	Arg	His	Pro	Asp	Met	Glu	Leu	Ala	Thr	Ala	Val	Arg	Ile
145					150					155					160
Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ala	Ala	Val	Arg	His	Gly	Glu	Arg
				165				170						175	
Gln	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Ile	Lys
			180					185					190		
Leu	Phe	Asp	Arg	Glu	Arg	Tyr	Ile	Asp	Leu	Val	Lys	Asp	Pro	Gly	Ala
		195					200					205			
Val	Arg	Arg	Thr	Gly	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Gln	Leu
	210					215					220				
Glu	Arg	Pro	Gly	His	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu	Gly
225					230					235					240
Leu	Arg	Leu	Asp	Ser	Arg	Glu	Glu	Ile	Gly	Leu	Phe	Arg	Tyr	Asp	Glu
				245					250					255	
Pro	Leu	Lys	Gly	Lys	Pro	Ile	Lys	Ser	Phe	Thr	Asp	Tyr	Ala	Arg	Gln
			260					265					270		
Leu	Phe	Gly	Ala	Leu	Met	Asn	Ala	Gln	Glu	Asn	Ile	His	Leu	His	Gly
		275					280					285			
Asp	Asp	Trp	Ala	Arg	Thr	Val	Tyr	Ile	Asp	Thr	Leu	Asp	Val	Gly	Thr
	290						295				300				
Thr	Asp	Phe	Asn	Leu	Ser	Asp	Ala	Thr	Lys	Gln	Ala	Leu	Ile	Glu	Gln
305					310					315					320
Gly	Ile	Asn	Gly	Thr	Glu	Asn	Tyr	Phe	Asp	Trp	Phe	Asp	Asn	Pro	Leu
				325					330					335	
Glu	Lys	Pro	Val	Asn	Arg	Val	Glu	Ser							
			340					345							

<210> 15  
 <211> 1344  
 <212> DNA  
 <213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 15

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gattatgtgt	ccctggatga	ccagggtgacg	ttcaatgatc	tggtcgatgc	catggccaga	180
gcctggagcg	atcgtggtct	gcccacggcc	ccgcgcagcg	tcgatgccgt	cgtgcacagc	240
accggcggcc	tggtgatccg	cgactggctc	acgcagctgt	acacgccgga	aacagccccc	300
attcgtcgcc	tgctgatgct	cgctccggcc	aatttcggct	cgccgctggc	acacaccgga	360
cgcagcatga	tcggccgggt	caccaagggc	tggaagggca	cgcggtctct	tgaaacgggc	420
aagcacattc	tcaaagggtc	cgaactggcc	agcccctacg	cctgggcgct	ggccgaacgc	480
gatctgttca	gcgatcagaa	ctattatggc	gccgggcgca	tcctgtgcac	tgtcctgggtg	540
ggcaacgccg	gttatcgcg	catcagcgcc	gtcgccaacc	ggcccggcac	ggacggcacc	600
gtgcgcgtca	gcagcgccaa	tctccaagcg	gccaggatgc	tgctcgattt	cagcgccagt	660
ccacaggctg	agccggaatt	caccctgcac	gacagcaccg	cggaaattgc	cttcggcatc	720
gccgacgagc	aagaccacag	caccatcgcc	gccaaggatc	gcggcccgcg	caaggcagtc	780
acctgggaac	tgattctcaa	agccctgcag	atcgaggatg	caagctttgc	tcaatgggtgc	840
cggcagatgc	aggagcattc	cgcggccgtg	acggaaacgg	cggaaaagcg	ccgcaatggt	900
cactacaaca	gcttccagaa	taccgtcggtg	cgcgtgggtg	acaaccacgg	tgccgcctg	960
caggattatc	tcatcgagtt	ttacatgaat	gatgatcgca	aactccgcga	tcagcgccctc	1020
accagcgcc	tgccaggagca	ggtgattacc	aacgtgcacg	gctacggtga	cgacaagtcc	1080
tatcgagca	tgctgatcaa	ctgcacggag	ctctatgcgc	tgatgtccag	accgcaggat	1140
cgcctgaaca	tcagcatcac	cgcctatccg	gatctctcca	agggactggt	ggggtatcgc	1200
acctacacgg	acgaggatat	cggttcctc	tctctggatg	cagcgcagat	ccgaaagctc	1260
tttaagccgc	accgtaccct	gttgatgaca	ctgtgcctgc	aacgctatca	gaaagatgat	1320
gtgttcctgat	tcagggatgt	ttga				1344

<210> 16

<211> 447

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 16

Met	Leu	Val	Ile	Ile	His	Gly	Trp	Ser	Asp	Glu	Ala	Gly	Ser	Phe	Lys
1				5					10					15	
Thr	Leu	Ala	Arg	Arg	Leu	Ala	Lys	Ala	Pro	Pro	Glu	Gly	Leu	Gly	Thr
			20					25					30		
Gln	Val	Thr	Glu	Ile	His	Leu	Gly	Asp	Tyr	Val	Ser	Leu	Asp	Asp	Gln
		35					40					45			
Val	Thr	Phe	Asn	Asp	Leu	Val	Asp	Ala	Met	Ala	Arg	Ala	Trp	Ser	Asp
	50					55					60				
Arg	Gly	Leu	Pro	Thr	Ala	Pro	Arg	Ser	Val	Asp	Ala	Val	Val	His	Ser
65					70					75				80	
Thr	Gly	Gly	Leu	Val	Ile	Arg	Asp	Trp	Leu	Thr	Gln	Leu	Tyr	Thr	Pro
				85					90					95	
Glu	Thr	Ala	Pro	Ile	Arg	Arg	Leu	Leu	Met	Leu	Ala	Pro	Ala	Asn	Phe
			100					105					110		
Gly	Ser	Pro	Leu	Ala	His	Thr	Gly	Arg	Ser	Met	Ile	Gly	Arg	Val	Thr
		115					120					125			
Lys	Gly	Trp	Lys	Gly	Thr	Arg	Leu	Phe	Glu	Thr	Gly	Lys	His	Ile	Leu
	130					135					140				
Lys	Gly	Leu	Glu	Leu	Ala	Ser	Pro	Tyr	Ala	Trp	Ala	Leu	Ala	Glu	Arg
145					150					155				160	
Asp	Leu	Phe	Ser	Asp	Gln	Asn	Tyr	Tyr	Gly	Ala	Gly	Arg	Ile	Leu	Cys
			165					170						175	
Thr	Val	Leu	Val	Gly	Asn	Ala	Gly	Tyr	Arg	Gly	Ile	Ser	Ala	Val	Ala
		180						185					190		
Asn	Arg	Pro	Gly	Thr	Asp	Gly	Thr	Val	Arg	Val	Ser	Ser	Ala	Asn	Leu
		195					200						205		



<220>

<223> Obtained from an environmental sample.

<400> 18

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Met Lys Lys Ser Leu Gln Gln His Leu Ala Ala Asp Gly Ser Pro Lys
 1          5          10          15
Asn Ile Leu Ser Leu Asp Gly Gly Gly Ile Arg Gly Ala Leu Thr Leu
 20          25          30
Gly Phe Leu Lys Lys Ile Glu Ser Ile Leu Gln Glu Lys His Gly Lys
 35          40          45
Asp Tyr Leu Leu Cys Asp His Phe Asp Leu Ile Gly Gly Thr Ser Thr
 50          55          60
Gly Ser Ile Ile Ala Ala Ala Leu Ala Ile Gly Met Thr Val Glu Glu
 65          70          75          80
Ile Thr Lys Met Tyr Met Asp Leu Gly Gly Lys Ile Phe Gly Lys Lys
 85          90          95
Arg Ser Phe Trp Arg Pro Trp Glu Thr Ala Lys Tyr Leu Lys Ala Gly
100          105          110
Tyr Asp His Lys Ala Leu Glu Lys Ser Leu Lys Asp Ala Phe Gln Asp
115          120          125
Phe Leu Leu Gly Ser Asp Gln Ile Arg Thr Gly Leu Cys Ile Val Ala
130          135          140
Lys Arg Ala Asp Thr Asn Ser Ile Trp Pro Leu Ile Asn His Pro Lys
145          150          155          160
Gly Lys Phe Tyr Asp Ser Glu Gln Gly Lys Asn Lys Asn Ile Pro Leu
165          170          175
Trp Gln Ala Val Arg Ala Ser Thr Ala Ala Pro Thr Tyr Phe Ala Pro
180          185          190
Gln Leu Ile Asp Val Gly Asp Gly Gln Lys Ala Ala Phe Val Asp Gly
195          200          205
Gly Val Ser Met Ala Asn Asn Pro Ala Leu Thr Leu Leu Lys Val Ala
210          215          220
Thr Leu Lys Gly Phe Pro Phe His Trp Pro Met Gly Glu Asp Lys Leu
225          230          235          240
Thr Ile Val Ser Val Gly Thr Gly Tyr Ser Val Phe Gln Arg Gln Lys
245          250          255
Gly Glu Ile Thr Lys Ala Ser Leu Leu Thr Trp Ala Lys Asn Val Pro
260          265          270
Glu Met Leu Met Gln Asp Ala Ser Trp Gln Asn Gln Thr Ile Leu Gln
275          280          285
Trp Ile Ser Lys Ser Pro Thr Ala His Ser Ile Asp Met Glu Met Glu
290          295          300
Asp Leu Arg Asp Asp Phe Leu Gly Gly Arg Pro Leu Ile Lys Tyr Leu
305          310          315          320
Arg Tyr Asn Phe Pro Leu Thr Val Asn Asp Leu Asn Gly Leu Lys Leu
325          330          335
Gly Lys Ser Phe Thr Gln Lys Glu Val Glu Asp Leu Val Glu Met Ser
340          345          350
Asn Ala His Asn Arg Glu Glu Leu Tyr Arg Ile Gly Glu Lys Ala Ala
355          360          365
Glu Gly Ser Val Lys Lys Glu His Phe Glu
370          375
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<210> 19

<211> 1248

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 19

atgaaaaaga caacgttagt tttggctcta ttgatgccat ttggtgccgc ctccgcacaa

60

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gacaatagta tgactccaga agcaatcaca tcagctcaag tcgcacaaac acaatcagcc 120
tccacctata cctacgttag gtgttggtat cgaacagacg caagccatga ttcaccagca 180
accgactggg agtgggctag aaaggaaaac ggagactatt acaccattga cggttactgg 240
tggtcatcga tctcctttta aaatatgttc tatagcgaga ctctcaaca agagatcaag 300
cagcgttggt tagacacctt ggatgttcag cagcagaaag ccgacatcac ctactttgcc 360
gctgacaacc gcttctctta caaccattct atctggacta acgatcacgg ctttcaagcg 420
aaccaaatca accgaatagt cgcttttggc gatagtcttt cagacacggg caacctatct 480
aatgggtcac aatggatttt ccctaaccct aattcttggt tcttggttca cttctctaac 540
ggcttcgttt ggactgaata cttggctaac gctaaggcg ttccactcta taactgggct 600
gtgggtggcg cagcaggaac caaccaatat gtcgctctaa ctggtgtcta tgatcaggct 660
acttcgtacc tgacttacat gaagatggcg aaaaattatc gccagagaa cacactattc 720
acattagagt ttggattgaa tgactttatg aattacggac gtgaagtagc tgatgtaaaa 780
gctgacttta gtagcgact gattcgctc accgacgtg gcgcaaaaaa cattctgttg 840
ttcaccctac cagatgcgac caaagcccct cagttaaagt actcaacggc ccaagaaatc 900
gagacagttc gtggcaagat tctggcggtt aaccagttca tcaaagaaca agcagagtac 960
tatcaaagca aaggtgacaa cgtgatccta tttgatgcgc acgctctatt ctctagcatc 1020
accagcgacc cacaaaaaca cgggttcaga aacgcaaaag atgcctgcct agatattaat 1080
cgtagtgcat ctcaagacta cctatacagc catagcttga ccaacgactg tgcaacctat 1140
ggttctgata gctatgtatt ttggggcgta acacaccaa ccacagcaac tcataaatac 1200
atcgcaacgc atatactgat gaattcaatg tcgacctcg actttttaa 1248

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<210> 20  
 <211> 415  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(19)

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<400> 20
Met Lys Lys Thr Thr Leu Val Leu Ala Leu Leu Met Pro Phe Gly Ala
1      5      10      15
Ala Ser Ala Gln Asp Asn Ser Met Thr Pro Glu Ala Ile Thr Ser Ala
20     25     30
Gln Val Ala Gln Thr Gln Ser Ala Ser Thr Tyr Thr Tyr Val Arg Cys
35     40     45
Trp Tyr Arg Thr Asp Ala Ser His Asp Ser Pro Ala Thr Asp Trp Glu
50     55     60
Trp Ala Arg Lys Glu Asn Gly Asp Tyr Tyr Thr Ile Asp Gly Tyr Trp
65     70     75     80
Trp Ser Ser Ile Ser Phe Lys Asn Met Phe Tyr Ser Glu Thr Pro Gln
85     90     95
Gln Glu Ile Lys Gln Arg Cys Val Asp Thr Leu Asp Val Gln His Asp
100    105    110
Lys Ala Asp Ile Thr Tyr Phe Ala Ala Asp Asn Arg Phe Ser Tyr Asn
115    120    125
His Ser Ile Trp Thr Asn Asp His Gly Phe Gln Ala Asn Gln Ile Asn
130    135    140
Arg Ile Val Ala Phe Gly Asp Ser Leu Ser Asp Thr Gly Asn Leu Phe
145    150    155    160
Asn Gly Ser Gln Trp Ile Phe Pro Asn Pro Asn Ser Trp Phe Leu Gly
165    170    175
His Phe Ser Asn Gly Phe Val Trp Thr Glu Tyr Leu Ala Asn Ala Lys
180    185    190
Gly Val Pro Leu Tyr Asn Trp Ala Val Gly Gly Ala Ala Gly Thr Asn
195    200    205
Gln Tyr Val Ala Leu Thr Gly Val Tyr Asp Gln Val Thr Ser Tyr Leu
210    215    220
Thr Tyr Met Lys Met Ala Lys Asn Tyr Arg Pro Glu Asn Thr Leu Phe
225    230    235    240
Thr Leu Glu Phe Gly Leu Asn Asp Phe Met Asn Tyr Gly Arg Glu Val

```



<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(28)

<400> 22

Met	Gln	Gln	His	Lys	Leu	Arg	Asn	Phe	Asn	Lys	Gly	Leu	Thr	Gly	Val
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Val	Leu	Ser	Val	Leu	Thr	Ser	Thr	Ser	Ala	Met	Ala	Phe	Thr	Gln	Ile
			20					25					30		
Gly	Gly	Gly	Gly	Ala	Ile	Pro	Met	Gly	His	Glu	Trp	Leu	Thr	Arg	Arg
		35					40					45			
Ser	Ala	Leu	Glu	Leu	Leu	Asn	Ala	Asp	His	Ile	Val	Ser	Asn	Asp	Pro
	50					55					60				
Leu	Asp	Pro	Arg	Leu	Gly	Trp	Ser	Gln	Gly	Leu	Ala	Lys	Asn	Leu	Asp
65				70						75					80
Leu	Ser	Asn	Ala	Leu	Asn	Glu	Val	Gln	Arg	Ile	Gln	Ser	Val	Thr	Lys
				85					90					95	
Thr	Asn	Ala	Leu	Tyr	Glu	Pro	Arg	Tyr	Asp	Asp	Val	Phe	Ser	Ala	Ile
			100					105					110		
Val	Gly	Glu	Arg	Trp	Val	Asp	Thr	Ala	Gly	Phe	Asn	Val	Ala	Lys	Ala
		115					120					125			
Thr	Val	Gly	Lys	Ile	Asp	Cys	Phe	Ser	Ala	Val	Ala	Gln	Glu	Pro	Ala
	130					135					140				
Asp	Val	Gln	Gln	Asp	His	Phe	Met	Arg	Arg	Tyr	Asp	Asp	Val	Gly	Gly
145					150					155					160
Gln	Gly	Gly	Val	Asn	Ala	Ala	Arg	Arg	Gly	Gln	Gln	Arg	Phe	Ile	Thr
				165					170					175	
His	Phe	Ile	Asn	Ala	Ala	Met	Ala	Glu	Glu	Lys	Ser	Ile	Lys	Ala	Trp
			180					185					190		
Asp	Gly	Gly	Gly	Tyr	Ser	Thr	Leu	Glu	Lys	Val	Ser	His	Asn	Tyr	Phe
		195					200					205			
Leu	Phe	Gly	Arg	Ala	Val	His	Leu	Phe	Gln	Asp	Ser	Phe	Ser	Pro	Glu
	210					215					220				
His	Thr	Val	Arg	Leu	Pro	Gln	Asp	Asn	Tyr	Glu	Lys	Val	Arg	Gln	Val
225					230					235					240
Lys	Ala	Tyr	Leu	Cys	Ser	Glu	Gly	Ala	Glu	Gln	His	Thr	His	Asn	Ala
				245					250					255	
Gln	Asp	Ala	Ile	Ser	Phe	Thr	Ser	Gly	Asp	Val	Ile	Trp	Lys	Lys	Asn
		260						265					270		
Thr	Arg	Leu	Asp	Ala	Gly	Trp	Ser	Thr	Tyr	Lys	Pro	Ser	Asn	Met	Lys
		275					280						285		
Pro	Val	Ala	Leu	Val	Ala	Met	Glu	Ala	Ser	Lys	Asp	Leu	Trp	Ala	Ala
	290					295					300				
Phe	Ile	Arg	Thr	Met	Ala	Ala	Pro	Arg	Ser	Glu	Arg	Arg	Ala	Ile	Ala
305					310					315					320
Gln	Gln	Glu	Ala	Gln	Thr	Leu	Val	Asn	Asn	Trp	Leu	Ser	Phe	Asp	Glu
				325					330					335	
Gln	Glu	Met	Leu	Ser	Trp	Tyr	Asp	Glu	Glu	Thr	His	Arg	Asp	His	Thr
		340						345					350		
Tyr	Val	Leu	Glu	Pro	Gly	Gln	Asn	Gly	Pro	Gly	Ile	Ser	Met	Phe	Asp
		355					360					365			
Cys	Met	Val	Gly	Leu	Gly	Val	Thr	Ser	Gly	Ser	Gln	Ala	Ala	Arg	Val
	370					375					380				
Ala	Glu	Leu	Asp	Gln	Gln	Arg	Arg	Gln	Cys	Leu	Phe	Asn	Val	Lys	Ala
385					390					395					400
Thr	Thr	Gly	Tyr	Ser	Asp	Leu	Asn	Asp	Pro	His	Met	Asp	Ile	Pro	Tyr
				405					410					415	
Asn	Trp	Gln	Trp	Thr	Ser	Thr	Thr	Gln	Trp	Lys	Val	Pro	Ser	Ala	Ser
		420						425					430		
Trp	Thr	Ile	Pro	Gln	Leu	Pro	Ala	Asp	Ala	Gly	Lys	Lys	Val	Thr	Ile

	435		440		445										
Lys	Asn	Ala	Ile	Asn	Gly	Asn	Pro	Leu	Val	Ala	Pro	Ala	Gly	Val	Lys
	450				455					460					
His	Asn	Ser	Asp	Ile	Tyr	Ser	Ala	Pro	Gly	Glu	Ala	Ile	Glu	Phe	Ile
465					470					475					480
Phe	Val	Gly	Asp	Tyr	Asn	Asn	Glu	Ser	Tyr	Leu	Arg	Ser	Lys	Lys	Asp
			485						490					495	
Ala	Asp	Leu	Phe	Leu	Ser	Tyr	Ser	Ala	Val	Ser	Gly	Lys	Gly	Leu	Leu
		500						505					510		
Tyr	Asn	Thr	Pro	Asn	Gln	Ala	Gly	Tyr	Arg	Val	Lys	Pro	Ala	Gly	Val
	515						520				525				
Leu	Trp	Thr	Ile	Glu	Asn	Thr	Tyr	Trp	Asn	Asp	Phe	Leu	Trp	Phe	Asn
	530					535					540				
Ser	Ser	Asn	Asn	Arg	Ile	Tyr	Val	Ser	Gly	Thr	Gly	Asp	Ala	Asn	Lys
545					550					555					560
Leu	His	Ser	Gln	Trp	Ile	Ile	Asp	Gly	Leu	Lys					
			565						570						

<210> 23  
 <211> 1473  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 23  
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 cccctcaccg gcttcaccgg caccgcttac cagcgccagg atacgggcca ggtggatc 180  
 gcctaccgcg gcacggaatt cgaccgcgaa cccgtgcgcg atggcggcgt cgacgcaggc 240  
 atggtgttgc ttggcgctcaa cgcccagtc cctgcatccg aggtattcac ccgcgaagtg 300  
 atcgaaaagg cgaagcacga agccgagctc aacgatcgcg agccgaagat caccgtcacc 360  
 gggcattccc tcggcggcac cctcgccgaa atcaatgccg cgaaatacgg cctccacggc 420  
 gaaaccttca atgcctacgg tgcggccagc ctcaaggcca tccccgaggg cggcgacacg 480  
 gtgatcgacc atgtccgcgc cggcgatctc gtcagcgccg ccagcccgca ctacgggcag 540  
 gtgctgtgtg acgcagctca gcaggatata gataccctgc aacatgccgg ctaccgcgac 600  
 gacagtggca tcttcagcct gcgcaacccc atcaaggcca cggatttcga cgcccacgcg 660  
 atcgataact tcgtgcccga cagcaagctg cttggccaat cgatcatcgc tcctgagAAC 720  
 gaagcccgtt acgaagccca caagggcatg atcgatcgct atcgcgatga cgtggccgat 780  
 atccgaaaag gcatctccgc tccctgggaa atccccagg ccgtcggcga gctgaaggac 840  
 aagctcgaac acgaagcctt cgagctggcc ggcaagggga tcctcgccgt cgagcacggt 900  
 gtagccgagg tcgttcacga ggcgaaggaa gggttcgatc atctcaagga aggcttgac 960  
 cagtcaggg aagagatcag cgagggcac cagccgtgg aagagaaggc ttccagcgca 1020  
 tggcacaccc taccacaccc gaaggaatgg ttcgagcag acaaacctca agtgaatctc 1080  
 gaccatcccc agcatccaga caacgccttg ttcaagcagg cgcaggggcg ggtacacgcc 1140  
 ctcgatgcca cgcaaggccg cagccagat aggacgagc accagatcgc aggttctctg 1200  
 gtggtcgcgg cgcgacgcga tggctctcag cgggtggacc gcgccgtgct cagcgatgac 1260  
 actagccggc tctacggcgt gcagggtgcg acggattcgc ccttgaagca gttcaccgag 1320  
 gtgaacacga cagtggcggc gcaaacgtca ctgcagcaaa gcagccaggc atggcagcag 1380  
 caagcagaga tcgcgcgaca gaaccaggca accagccagg ctacgcgcat ggaaccgcag 1440  
 gtgccccgcg aggcaccggc acatggcatg taa 1473

<210> 24  
 <211> 490  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 24  
 Met Thr Ile Arg Ser Thr Asp Tyr Ala Leu Leu Ala Gln Glu Ser Tyr  
 1 5 10 15



His	Asp	Ser	Gln	Val	Asp	Ala	Asp	Val	Lys	Leu	Asp	Gly	Ile	Ser	Tyr	
			20					25					30			
Lys	Val	Phe	Ala	Thr	Thr	Asp	Asp	Pro	Leu	Thr	Gly	Phe	Gln	Ala	Thr	
		35					40					45				
Ala	Tyr	Gln	Arg	Gln	Asp	Thr	Gly	Glu	Val	Val	Ile	Ala	Tyr	Arg	Gly	
	50				55						60					
Thr	Glu	Phe	Asp	Arg	Glu	Pro	Val	Arg	Asp	Gly	Gly	Val	Asp	Ala	Gly	
65					70					75					80	
Met	Val	Leu	Leu	Gly	Val	Asn	Ala	Gln	Ser	Pro	Ala	Ser	Glu	Val	Phe	
				85					90					95		
Thr	Arg	Glu	Val	Ile	Glu	Lys	Ala	Lys	His	Glu	Ala	Glu	Leu	Asn	Asp	
			100					105					110			
Arg	Glu	Pro	Lys	Ile	Thr	Val	Thr	Gly	His	Ser	Leu	Gly	Gly	Thr	Leu	
		115					120					125				
Ala	Glu	Ile	Asn	Ala	Ala	Lys	Tyr	Gly	Leu	His	Gly	Glu	Thr	Phe	Asn	
	130					135					140					
Ala	Tyr	Gly	Ala	Ala	Ser	Leu	Lys	Gly	Ile	Pro	Glu	Gly	Gly	Asp	Thr	
145					150					155					160	
Val	Ile	Asp	His	Val	Arg	Ala	Gly	Asp	Leu	Val	Ser	Ala	Ala	Ser	Pro	
				165					170					175		
His	Tyr	Gly	Gln	Val	Arg	Val	Tyr	Ala	Ala	Gln	Gln	Asp	Ile	Asp	Thr	
			180					185					190			
Leu	Gln	His	Ala	Gly	Tyr	Arg	Asp	Asp	Ser	Gly	Ile	Phe	Ser	Leu	Arg	
		195					200					205				
Asn	Pro	Ile	Lys	Ala	Thr	Asp	Phe	Asp	Ala	His	Ala	Ile	Asp	Asn	Phe	
	210					215					220					
Val	Pro	Asn	Ser	Lys	Leu	Gly	Gln	Ser	Ile	Ile	Ala	Pro	Glu	Asn		
225				230					235					240		
Glu	Ala	Arg	Tyr	Glu	Ala	His	Lys	Gly	Met	Ile	Asp	Arg	Tyr	Arg	Asp	
			245						250					255		
Asp	Val	Ala	Asp	Ile	Arg	Lys	Gly	Ile	Ser	Ala	Pro	Trp	Glu	Ile	Pro	
		260						265					270			
Lys	Ala	Val	Gly	Glu	Leu	Lys	Asp	Lys	Leu	Glu	His	Glu	Ala	Phe	Glu	
		275					280					285				
Leu	Ala	Gly	Lys	Gly	Ile	Leu	Ala	Val	Glu	His	Gly	Val	Ala	Glu	Val	
	290					295					300					
Val	His	Glu	Ala	Lys	Glu	Gly	Phe	Asp	His	Leu	Lys	Glu	Gly	Leu	His	
305				310					315					320		
His	Val	Arg	Glu	Glu	Ile	Ser	Glu	Gly	Ile	His	Ala	Val	Glu	Glu	Lys	
			325						330					335		
Ala	Ser	Ser	Ala	Trp	His	Thr	Leu	Thr	His	Pro	Lys	Glu	Trp	Phe	Glu	
		340					345						350			
His	Asp	Lys	Pro	Gln	Val	Asn	Leu	Asp	His	Pro	Gln	His	Pro	Asp	Asn	
		355					360					365				
Ala	Leu	Phe	Lys	Gln	Ala	Gln	Gly	Ala	Val	His	Ala	Leu	Asp	Ala	Thr	
	370					375					380					
Gln	Gly	Arg	Thr	Pro	Asp	Arg	Thr	Ser	Asp	Gln	Ile	Ala	Gly	Ser	Leu	
385				390					395					400		
Val	Val	Ala	Ala	Arg	Arg	Asp	Gly	Leu	Glu	Arg	Val	Asp	Arg	Ala	Val	
			405						410					415		
Leu	Ser	Asp	Asp	Thr	Ser	Arg	Leu	Tyr	Gly	Val	Gln	Gly	Ala	Thr	Asp	
		420					425					430				
Ser	Pro	Leu	Lys	Gln	Phe	Thr	Glu	Val	Asn	Thr	Thr	Val	Ala	Ala	Gln	
		435					440					445				
Thr	Ser	Leu	Gln	Gln	Ser	Ser	Gln	Ala	Trp	Gln	Gln	Gln	Ala	Glu	Ile	
	450					455					460					
Ala	Arg	Gln	Asn	Gln	Ala	Thr	Ser	Gln	Ala	Gln	Arg	Met	Glu	Pro	Gln	
465				470					475					480		
Val	Pro	Pro	Gln	Ala	Pro	Ala	His	Gly	Met							
			485					490								

<210> 25  
 <211> 1098  
 . <212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 25

atgtgcgcca	aagttaaagt	agtcaaaata	aagacaaaaca	caggcagccc	aaacaaatac	60
cacttcaaga	acctcgtctt	cgaaggcggc	ggcgtgaaag	gcattgccta	tgtgggagcc	120
cttaccaagc	tcgacgagga	aggcatcctt	caaaacatta	agcgcgtggc	cggcacctca	180
gcaggagcaa	tggtgccgt	cctcgtcggg	ttgggcttca	ccgctaagga	gataagcgac	240
atcctgtggg	acatcaaatt	ccagaacttt	ttagacaact	catggggcgt	gatacgcaac	300
accaatcgtc	tgctgacgga	atacggctgg	tataagggcg	agtttttccg	cgacctcatg	360
gctgattaca	tcaaaagaaa	gacagacgat	ggcgagatta	ctttcgggga	gttggaggcc	420
atgagaaaag	agggcaagcc	cttcttgga	atccatctgg	ttggctccga	cctcacgaca	480
gggtattcca	gagtgttcaa	ctccaaaaac	accccaaagt	tgaagtcgc	cgatgccgcc	540
cgcattctcca	tgtcgatacc	gctgtttttc	tccgctgtga	gaggcgtgca	aggcgacgac	600
cacctctatg	tggacgggtg	gcttttggac	aactacgcca	tcaagatttt	cgaccagtcg	660
aaactcgttt	cagacaaaaa	caacaaaagg	aagaccgagt	attacaacag	gctcaaccag	720
caagtgaacg	cgaagcaaac	gaaaagcaag	acggaatctg	tagagtatgt	ctacaacaag	780
gagacttttg	gcttcgcgtt	ggatgccaaa	gaggacatca	acctcttcct	caaccacgat	840
gatgcccttc	aaaaagaaat	caagagtttc	ttctcttaca	ccaaagcttt	ggtttccacg	900
ctcatcgatt	tccagaacaa	tgtacacctg	cacagcgacg	actggcagcg	tacgggtctac	960
atcgacacac	tcggtgtcag	ctccattgac	ttcgggtctgt	caaacacaac	gaaacaagct	1020
cttgtcgatt	cgggctacaa	ctacaccaca	gcctacctcg	actggtacaa	caacgacgag	1080
gataaagcca	acaagtaa					1098

<210> 26

<211> 365

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 26

Met	Cys	Ala	Lys	Val	Lys	Val	Val	Lys	Ile	Lys	Thr	Asn	Thr	Gly	Ser	
1				5				10						15		
Pro	Asn	Lys	Tyr	His	Phe	Lys	Asn	Leu	Val	Phe	Glu	Gly	Gly	Gly	Val	
			20					25						30		
Lys	Gly	Ile	Ala	Tyr	Val	Gly	Ala	Leu	Thr	Lys	Leu	Asp	Glu	Glu	Gly	
		35					40					45				
Ile	Leu	Gln	Asn	Ile	Lys	Arg	Val	Ala	Gly	Thr	Ser	Ala	Gly	Ala	Met	
	50					55					60					
Val	Ala	Val	Leu	Val	Gly	Leu	Gly	Phe	Thr	Ala	Lys	Glu	Ile	Ser	Asp	
65					70				75						80	
Ile	Leu	Trp	Asp	Ile	Lys	Phe	Gln	Asn	Phe	Leu	Asp	Asn	Ser	Trp	Gly	
			85					90						95		
Val	Ile	Arg	Asn	Thr	Asn	Arg	Leu	Leu	Thr	Glu	Tyr	Gly	Trp	Tyr	Lys	
			100					105						110		
Gly	Glu	Phe	Phe	Arg	Asp	Leu	Met	Ala	Asp	Tyr	Ile	Lys	Arg	Lys	Thr	
	115						120					125				
Asp	Asp	Gly	Glu	Ile	Thr	Phe	Gly	Glu	Leu	Glu	Ala	Met	Arg	Lys	Glu	
	130						135				140					
Gly	Lys	Pro	Phe	Leu	Glu	Ile	His	Leu	Val	Gly	Ser	Asp	Leu	Thr	Thr	
145					150					155					160	
Gly	Tyr	Ser	Arg	Val	Phe	Asn	Ser	Lys	Asn	Thr	Pro	Asn	Val	Lys	Val	
			165					170						175		
Ala	Asp	Ala	Ala	Arg	Ile	Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ser	Ala	
		180						185					190			
Val	Arg	Gly	Val	Gln	Gly	Asp	Asp	His	Leu	Tyr	Val	Asp	Gly	Gly	Leu	
	195					200						205				
Leu	Asp	Asn	Tyr	Ala	Ile	Lys	Ile	Phe	Asp	Gln	Ser	Lys	Leu	Val	Ser	
	210					215					220					
Asp	Lys	Asn	Asn	Lys	Arg	Lys	Thr	Glu	Tyr	Tyr	Asn	Arg	Leu	Asn	Gln	

225		230		235		240
Gln Val Asn Ala Lys	Ala Thr Lys Ser Lys	Thr Glu Ser Val Glu Tyr				
	245		250		255	
Val Tyr Asn Lys Glu	Thr Leu Gly Phe Arg	Leu Asp Ala Lys Glu Asp				
	260		265		270	
Ile Asn Leu Phe Leu	Asn His Asp Asp	Ala Pro Gln Lys Glu Ile Lys				
	275		280		285	
Ser Phe Phe Ser Tyr	Thr Lys Ala Leu Val	Ser Thr Leu Ile Asp Phe				
	290		295		300	
Gln Asn Asn Val His	Leu His Ser Asp Asp	Trp Gln Arg Thr Val Tyr				
305		310		315		320
Ile Asp Thr Leu Gly	Val Ser Ser Ile Asp	Phe Gly Leu Ser Asn Thr				
	325		330		335	
Thr Lys Gln Ala Leu	Val Asp Ser Gly Tyr	Asn Tyr Thr Thr Ala Tyr				
	340		345		350	
Leu Asp Trp Tyr Asn	Asn Asp Glu Asp	Lys Ala Asn Lys				
	355		360		365	

<210> 27  
 <211> 1287  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 27

gtgtcgatta	ccgtttaccg	gaagccctcc	ggcgggtttg	gagcgatagt	tcctcaagcg	60
aaaattgaga	accttgtttt	cgagggcggc	ggaccaaagg	gcctgggtcta	tgctggcgcg	120
gtcgaggttc	tcggcgaaag	gggactgctg	gaagggatcg	caaatgtcgg	cggcgcttca	180
gcaggcgcca	tgaccgctct	agccgtcggt	ctgggactga	gccccaggga	aattcgcgcg	240
gtcgtcttta	accagaacat	tgcggaacctc	accgatatcg	agaagaccgt	cgagccgtcc	300
tccgggatta	caggcatggt	caagagcggtg	ttcaagaagg	gttggcaggc	ggtgcgcaac	360
gtaaccggca	cctctgacga	gcgcggggcg	gggctctatc	gcggcgagaa	gttgcgagcc	420
tggtacagag	acctgattgc	acagcgagtc	gaggcggggc	gctccgaggt	cctgagccga	480
gccgacgccg	atggacggaa	cttctatgag	aaagccgcgc	caaagaaggg	cgccctgaca	540
tttgccgagc	ttgatcgggt	ggcgcaaatg	gcgccggggc	tgcggttcg	ccgcctggcc	600
ttcacccgaa	ccaacttcac	gtcgaagaag	ctcgaagtgt	tcagtctgca	cgagaccccg	660
gacatgccga	tcgacgtcgc	ggtacgcatac	tccgcatacgt	tgccatggtt	tttcaaattcc	720
gtgaaatgga	acggctccga	atacatagat	ggcggctgcc	tgtcgaactt	cccaatgccg	780
atattcgacg	tcgatcccta	tcgtggcgac	gcatacgtcga	aaatccggct	cggcatacttc	840
ggccagaacc	tcgcgacgct	cggcttcaag	gtcgcacagcg	aggaggagat	ccgcgacatt	900
ctctggcgta	gccccgagag	cacgagcgac	ggctttttcc	aaggcatcct	gtcaagcgtg	960
aaagcttctg	cagaacactg	ggtcgtcgcc	atcgacgtcg	aaggcgccac	ccgcgcgtcg	1020
aacgtggccg	ttcacggcaa	gtatgctcag	cgaacgatcc	agataccgga	cctcggatat	1080
agcacgttca	agttcgatct	ttcggacgct	gacaaggagc	gcatggccga	ggccggcgca	1140
aaggccacgc	gggaatggct	ggcgctgtac	ttcgacgacg	ccggaataga	ggtcgaattt	1200
tctgatccga	acgaattgcg	cggccagttg	tccgacgccg	cattcgcaga	cctcgaggat	1260
tcgtttcgag	ccttgatcgc	ggcctag				1287

<210> 28  
 <211> 428  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 28

Met Ser Ile Thr Val Tyr Arg Lys Pro Ser Gly Gly Phe Gly Ala Ile	
1	5 10 15
Val Pro Gln Ala Lys Ile Glu Asn Leu Val Phe Glu Gly Gly Pro	
	20 25 30
Lys Gly Leu Val Tyr Val Gly Ala Val Glu Val Leu Gly Glu Arg Gly	



```

ttggtgaatg acctaaccat gatattagga ggtattgggt ctggtgctgc aatccaacca 360
acgattaaca tggcacaaga actcatcgac caatatggag tgaatttgat tacagggtcac 420
tcccttgag gctacatgac tgagatcatc gccaccaatc gtggacttcc aggtattgca 480
ttttgcgcac caggttcaaa tgggtccatt gtaaaattag gtggacaaga gacacctggc 540
tttcacaatg tgaactttga acatgatcca gcaggtaacg ttatgacggg gggtttatact 600
catgtccaat ggagtattta tgtaggatgt gatggtatga ctcatgggat tgaaaatatg 660
gtgaattatt ttaaagataa aagagattta accaatcgca atattcaagg aagaagtgaa 720
agtcataata cgggttatta ttacccaaaa taa 753

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<210> 30  
 <211> 250  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

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<400> 30
Met Gly Asn Gly Ala Ala Val Gly Ser Asn Asp Asn Gly Arg Glu Glu
 1          5          10          15
Ser Val Tyr Val Leu Ser Val Ile Ala Cys Asn Val Tyr Tyr Leu Gln
          20          25          30
Lys Cys Glu Gly Gly Ala Ser Arg Asp Ser Val Ile Arg Glu Ile Asn
          35          40          45
Ser Gln Thr Gln Pro Leu Gly Tyr Glu Ile Val Ala Asp Ser Ile Arg
          50          55          60
Asp Gly His Ile Gly Ser Phe Ala Cys Lys Met Ala Val Phe Arg Asn
65          70          75          80
Asn Gly Asn Gly Asn Cys Val Leu Ala Ile Lys Gly Thr Asp Met Asn
          85          90          95
Asn Ile Asn Asp Leu Val Asn Asp Leu Thr Met Ile Leu Gly Gly Ile
          100          105          110
Gly Ser Val Ala Ala Ile Gln Pro Thr Ile Asn Met Ala Gln Glu Leu
          115          120          125
Ile Asp Gln Tyr Gly Val Asn Leu Ile Thr Gly His Ser Leu Gly Gly
          130          135          140
Tyr Met Thr Glu Ile Ile Ala Thr Asn Arg Gly Leu Pro Gly Ile Ala
145          150          155          160
Phe Cys Ala Pro Gly Ser Asn Gly Pro Ile Val Lys Leu Gly Gly Gln
          165          170          175
Glu Thr Pro Gly Phe His Asn Val Asn Phe Glu His Asp Pro Ala Gly
          180          185          190
Asn Val Met Thr Gly Val Tyr Thr His Val Gln Trp Ser Ile Tyr Val
          195          200          205
Gly Cys Asp Gly Met Thr His Gly Ile Glu Asn Met Val Asn Tyr Phe
          210          215          220
Lys Asp Lys Arg Asp Leu Thr Asn Arg Asn Ile Gln Gly Arg Ser Glu
225          230          235          240
Ser His Asn Thr Gly Tyr Tyr Tyr Pro Lys
          245          250

```

<210> 31  
 <211> 1422  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

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<400> 31
atgaaaaaga aattatgtac atgggctctc gtaacagcga tatcttctgg agttgttgcg 60
attccaaccg tagcatctgc ttgcggaatg ggtgaagtaa tgaacagga ggatcaagag 120
caciaacgtg tgaagagatg gtctgcggag catccgcacc atgctaataa aagcacgcac 180
ttatggattg ctcgaaatgc gattcaaatt atgagtcgta atcaagataa gacgggttcaa 240

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gaaaatgaat	tacaattctt	aaaaatacct	gaatataagg	agttatttga	aagagggctt	300
tatgatgccg	attatcttga	tgagtttaac	gatggaggta	caggtacaat	cggtattgat	360
gggctaatta	aaggaggctg	gaaatctcat	ttctatgatc	ctgatacgaa	aaagaactat	420
aaaggagaag	aagaaccaac	agccctttcg	caaggggata	aatattttaa	attagcagga	480
gattatttta	agaaagaaga	ttggaaacaa	gcttttctatt	atttaggtgt	tgcgacgcat	540
tacttcacag	atgctactca	gccaatgcat	gctgctaatt	ttacagctgt	cgacatgagt	600
gcaataaagt	ttcatagcgc	ttttgaaaat	tatgtaacga	cagttcagac	accgtttgaa	660
gtgaaggatg	ataagggaac	atataatttg	gtcaattctg	atgatccgaa	gcagtggata	720
catgaaacag	cgaaactcgc	aaaagcagaa	attatgaata	ttactagtga	taatattaaa	780
tctcaatata	ataaaggaaa	caaagatctt	tggcaacaag	aagttatgcc	agctgtccag	840
aggagttag	agaaagcgca	aagaaacacg	gcgggattta	ttcatttatg	gtttaaaaca	900
tatgttggca	aaactgcagc	tgaagatatt	gaaactacac	aggtaaaaga	ttctaattgga	960
gaagcaatac	aagaacaaaa	aaaatactac	gttgtgccta	gtgagttttt	aaatagaggt	1020
ttgacctttg	aggtatatgc	ttcgaatgac	tacgcactat	tatctaatac	cgtagatgat	1080
aataaagttc	atggtacacc	tgttcagttt	gtttttgata	aagagaataa	cggaattggt	1140
catcggggag	aaagtgtact	gctgaaaatg	acgcaatcta	actatgatga	ttatgtatgt	1200
cttaattact	ctaatatgac	aaattgggtta	catcttgcca	aacgaaaaac	aaatactgca	1260
cagtttaaaag	tgtatccaaa	tccgggataac	tcatctgaat	atttcctata	tacagatgga	1320
taccgggtaa	attatcaaga	aaatggtaac	gggaagagct	ggattgagtt	aggaaagaaa	1380
acggataaac	cgaaagcgtg	gaaatttcaa	caggcagaat	aa		1422

<210> 32

<211> 473

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(20)

<400> 32

Met	Lys	Lys	Lys	Leu	Cys	Thr	Trp	Ala	Leu	Val	Thr	Ala	Ile	Ser	Ser
1				5					10					15	
Gly	Val	Val	Ala	Ile	Pro	Thr	Val	Ala	Ser	Ala	Cys	Gly	Met	Gly	Glu
			20					25					30		
Val	Met	Lys	Gln	Glu	Asp	Gln	Glu	His	Lys	Arg	Val	Lys	Arg	Trp	Ser
		35					40					45			
Ala	Glu	His	Pro	His	His	Ala	Asn	Glu	Ser	Thr	His	Leu	Trp	Ile	Ala
	50					55					60				
Arg	Asn	Ala	Ile	Gln	Ile	Met	Ser	Arg	Asn	Gln	Asp	Lys	Thr	Val	Gln
65				70					75					80	
Glu	Asn	Glu	Leu	Gln	Phe	Leu	Lys	Ile	Pro	Glu	Tyr	Lys	Glu	Leu	Phe
			85					90					95		
Glu	Arg	Gly	Leu	Tyr	Asp	Ala	Asp	Tyr	Leu	Asp	Glu	Phe	Asn	Asp	Gly
			100				105					110			
Gly	Thr	Gly	Thr	Ile	Gly	Ile	Asp	Gly	Leu	Ile	Lys	Gly	Gly	Trp	Lys
		115					120					125			
Ser	His	Phe	Tyr	Asp	Pro	Asp	Thr	Lys	Lys	Asn	Tyr	Lys	Gly	Glu	Glu
	130					135					140				
Glu	Pro	Thr	Ala	Leu	Ser	Gln	Gly	Asp	Lys	Tyr	Phe	Lys	Leu	Ala	Gly
145				150					155						160
Asp	Tyr	Phe	Lys	Lys	Glu	Asp	Trp	Lys	Gln	Ala	Phe	Tyr	Tyr	Leu	Gly
			165					170						175	
Val	Ala	Thr	His	Tyr	Phe	Thr	Asp	Ala	Thr	Gln	Pro	Met	His	Ala	Ala
			180				185					190			
Asn	Phe	Thr	Ala	Val	Asp	Met	Ser	Ala	Ile	Lys	Phe	His	Ser	Ala	Phe
	195					200						205			
Glu	Asn	Tyr	Val	Thr	Thr	Val	Gln	Thr	Pro	Phe	Glu	Val	Lys	Asp	Asp
	210					215					220				
Lys	Gly	Thr	Tyr	Asn	Leu	Val	Asn	Ser	Asp	Asp	Pro	Lys	Gln	Trp	Ile
225				230					235					240	
His	Glu	Thr	Ala	Lys	Leu	Ala	Lys	Ala	Glu	Ile	Met	Asn	Ile	Thr	Ser

				245					250					255			
Asp	Asn	Ile	Lys	Ser	Gln	Tyr	Asn	Lys	Gly	Asn	Lys	Asp	Leu	Trp	Gln		
			260					265					270				
Gln	Glu	Val	Met	Pro	Ala	Val	Gln	Arg	Ser	Leu	Glu	Lys	Ala	Gln	Arg		
		275					280					285					
Asn	Thr	Ala	Gly	Phe	Ile	His	Leu	Trp	Phe	Lys	Thr	Tyr	Val	Gly	Lys		
	290				295						300						
Thr	Ala	Ala	Glu	Asp	Ile	Glu	Thr	Thr	Gln	Val	Lys	Asp	Ser	Asn	Gly		
305					310					315					320		
Glu	Ala	Ile	Gln	Glu	Gln	Lys	Lys	Tyr	Tyr	Val	Val	Pro	Ser	Glu	Phe		
			325						330					335			
Leu	Asn	Arg	Gly	Leu	Thr	Phe	Glu	Val	Tyr	Ala	Ser	Asn	Asp	Tyr	Ala		
		340						345				350					
Leu	Leu	Ser	Asn	His	Val	Asp	Asp	Asn	Lys	Val	His	Gly	Thr	Pro	Val		
	355					360						365					
Gln	Phe	Val	Phe	Asp	Lys	Glu	Asn	Asn	Gly	Ile	Val	His	Arg	Gly	Glu		
	370				375					380							
Ser	Val	Leu	Leu	Lys	Met	Thr	Gln	Ser	Asn	Tyr	Asp	Asp	Tyr	Val	Phe		
385					390					395					400		
Leu	Asn	Tyr	Ser	Asn	Met	Thr	Asn	Trp	Leu	His	Leu	Ala	Lys	Arg	Lys		
			405					410				415					
Thr	Asn	Thr	Ala	Gln	Phe	Lys	Val	Tyr	Pro	Asn	Pro	Asp	Asn	Ser	Ser		
		420						425				430					
Glu	Tyr	Phe	Leu	Tyr	Thr	Asp	Gly	Tyr	Pro	Val	Asn	Tyr	Gln	Glu	Asn		
	435				440						445						
Gly	Asn	Gly	Lys	Ser	Trp	Ile	Glu	Leu	Gly	Lys	Lys	Thr	Asp	Lys	Pro		
	450				455					460							
Lys	Ala	Trp	Lys	Phe	Gln	Gln	Ala	Glu									
465					470												

<210> 33  
 <211> 792  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 33  
 atgagagcac tcgtgctggc aggcggtgga gccaagggct cgtttcaagt gggcgtgctg 60  
 cagcggttca ccccgcgaga ctccggtctc gtgggtgggat gctcggtcgg agcttttaaac 120  
 gccgcggggg ttgcccacct gggtagccat ggcacaaaag acctctggca agggatcagg 180  
 agtcgagatg acatcctgtc ccgtgtcttg tggccgtttg gtcagacgg gatcttctcg 240  
 cagaagcctc ttgaaaagct cgtctccaaa gcatgcacgg gtctgtctcg ggtgccggtc 300  
 cactgtggcg cggtctgcct tgaacgcggc cttgtccact acgggatctc cggggactct 360  
 gactttgaga agaaagtgtc ggcacgggtc gcgatcccag gcgtggtgaa gccagttaag 420  
 atccatggcg accactacgt cgacggtggt gtcagagaga tctgtccgct gcgtcgagcc 480  
 atcgacctgg gcgccacgga gatcacagtc atcatgtgcg ctccggaata catcccgacc 540  
 tggtcgcgta gttcctcgct gttcccgttt gtgaacgtga tgatccggtc tctcgacatc 600  
 ctgaccgatg agatcctggt caacgacatc gccgagtgcg tggcaaagaa caagatgcc 660  
 ggtaaactgc acgtaaagct caccatctac cgccgaaga aagagctcat gggcacgctc 720  
 gactttgacc ccaaagccat cgccgcaggg atcaaggcag gcaccgaagc ccagccaagg 780  
 ttctgggagt aa 792

<210> 34  
 <211> 263  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 34  
 Met Arg Ala Leu Val Leu Ala Gly Gly Gly Ala Lys Gly Ser Phe Gln

1	5	10	15
Val Gly Val	Leu Gln Arg Phe Thr	Pro Ala Asp Phe Gly	Leu Val Val
	20	25	30
Gly Cys Ser	Val Gly Ala Leu Asn	Ala Ala Gly Phe Ala	His Leu Gly
	35	40	45
Ser His Gly	Ile Lys Asp Leu Trp	Gln Gly Ile Arg Ser	Arg Asp Asp
	50	55	60
Ile Leu Ser	Arg Val Trp Trp	Pro Phe Gly Ser	Asp Gly Ile Phe Ser
65	70	75	80
Gln Lys Pro	Leu Glu Lys Leu Val	Ser Lys Ala Cys Thr	Gly Pro Ala
	85	90	95
Arg Val Pro	Val His Val Ala Thr	Val Cys Leu Glu Arg	Gly Leu Val
	100	105	110
His Tyr Gly	Ile Ser Gly Asp Ser	Asp Phe Glu Lys Lys	Val Leu Ala
	115	120	125
Ser Ala Ala	Ile Pro Gly Val	Lys Pro Val Lys Ile	His Gly Asp
	130	135	140
His Tyr Val	Asp Gly Gly Val	Arg Glu Ile Cys Pro	Leu Arg Arg Ala
145	150	155	160
Ile Asp Leu	Gly Ala Thr Glu Ile	Thr Val Ile Met Cys	Ala Pro Glu
	165	170	175
Tyr Ile Pro	Thr Trp Ser Arg Ser	Ser Ser Leu Phe Pro	Phe Val Asn
	180	185	190
Val Met Ile	Arg Ser Leu Asp Ile	Leu Thr Asp Glu Ile	Leu Val Asn
	195	200	205
Asp Ile Ala	Glu Cys Val Ala	Lys Asn Lys Met Pro	Gly Lys Arg His
	210	215	220
Val Lys Leu	Thr Ile Tyr Arg Pro	Lys Lys Glu Leu Met	Gly Thr Leu
225	230	235	240
Asp Phe Asp	Pro Lys Ala Ile Ala	Ala Gly Ile Lys Ala	Gly Thr Glu
	245	250	255
Ala Gln Pro	Arg Phe Trp Glu		
	260		

<210> 35  
 <211> 1389  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 35

atgcccgagc	cgccccgcgc	atgccgtttgc	gattgcgccct	gcgagcgcgca	ccagcacctt	60
ttttgcaagg	gacccaagcg	tatcctcgcg	ctcgacggcg	gcggcggtgcg	cggcgcgctc	120
agcgtcgcat	tcctcgaacg	gatcgaggcg	gtgctcgagg	ccgggctcgg	acgcaaggtg	180
ctgctcggcc	actggttcga	cctgatcggc	ggcacctcga	cgggcgccat	catcggcggc	240
gcgctggcga	tgggattcgc	ggccgaggac	gtccaaagat	tctatcacga	gctcgcgccg	300
cgggtgttca	ggcatccgct	cctgcgcacg	ggtctcctgc	gcccgttccg	cgcgaaattc	360
gacgcccgcg	tgctgcgcga	ggagatccac	cgcacatcgc	gcgacagcac	gctcggcgac	420
aaagcgtga	tgaccggggt	cgcgctcgtc	gccaagcgga	tggaacaccg	cagcacctgg	480
atcctcgcca	acaacaagcg	cagcaaatac	tgggaagggc	gggacggcgt	cgtcggcaac	540
aaggattatc	tcctcggcag	cctcattcgc	gcgagcacgg	cggcgcgcgt	gtatttcgac	600
cccaggagg	tcgtgatcgc	ggaggcccgc	aaggacatcg	agggcatcag	gggcctgttc	660
gtcgacggcg	gcgtcacgcc	gcacaacaat	ccttcgctcg	cgatgctgct	gctggcgctg	720
ctcgacgcct	accggctgcg	ctgggaaacg	ggaccggaca	agctcacggg	cgtctcgatc	780
ggcactggaa	cgcacgcgga	ccgcgtcggt	cccgcacacg	tcggcatggg	caagaacgcg	840
aagatcgcg	tgcgcgccat	gagctcgctg	atgaacgacg	tgacagagct	cgcgctcacg	900
cagatgcagt	acctcggtga	gacgctcacc	ccgtggcgca	tcaacgacga	gctcggcgac	960
atgcggaccg	agcggccgcc	gcaaggcaag	ctcttcgcgt	tcctccgcta	cgacgtccgg	1020
ctggagctcg	attggatcaa	cgaggacgag	gagcgccggc	gcaagatcaa	gaacaaattc	1080
aagcgcgagc	tgaccgagac	cgacatgacg	cgccctgcga	gcctcgacga	tccgacgacc	1140
atcccggacc	tctacatgct	tgcccaggtc	gcggccgagg	agcaggtcaa	ggcggagcac	1200
tggctcggcg	acgtgccgga	gtggagcgaa	ggcgcgcgcc	cgtgtgcgcc	gcgccggcac	1260



ctgccgccga cgccgccggg ccgctccgag gattcggcgc gcttccgggc cgagaaggcc 1320  
 gtcggcgagt ggctcagttt tgcgcgcgcg aacatcacgc gcctcatgtc gcggaagccg 1380  
 ccgggttga 1389

<210> 36  
 <211> 462  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 36  
 Met Pro Glu Pro Pro Ala Ala Cys Arg Cys Asp Cys Ala Cys Glu Arg  
 1 5 10 15  
 Asp Gln His Leu Phe Cys Lys Gly Pro Lys Arg Ile Leu Ala Leu Asp  
 20 25 30  
 Gly Gly Gly Val Arg Gly Ala Val Ser Val Ala Phe Leu Glu Arg Ile  
 35 40 45  
 Glu Ala Val Leu Glu Ala Arg Leu Gly Arg Lys Val Leu Leu Gly His  
 50 55 60  
 Trp Phe Asp Leu Ile Gly Gly Thr Ser Thr Gly Ala Ile Ile Gly Gly  
 65 70 75 80  
 Ala Leu Ala Met Gly Phe Ala Ala Glu Asp Val Gln Arg Phe Tyr His  
 85 90 95  
 Glu Leu Ala Pro Arg Val Phe Arg His Pro Leu Leu Arg Ile Gly Leu  
 100 105 110  
 Leu Arg Pro Phe Arg Ala Lys Phe Asp Ala Arg Leu Leu Arg Glu Glu  
 115 120 125  
 Ile His Arg Ile Ile Gly Asp Ser Thr Leu Gly Asp Lys Ala Leu Met  
 130 135 140  
 Thr Gly Phe Ala Leu Val Ala Lys Arg Met Asp Thr Gly Ser Thr Trp  
 145 150 155 160  
 Ile Leu Ala Asn Asn Lys Arg Ser Lys Tyr Trp Glu Gly Arg Asp Gly  
 165 170 175  
 Val Val Gly Asn Lys Asp Tyr Leu Leu Gly Ser Leu Ile Arg Ala Ser  
 180 185 190  
 Thr Ala Ala Pro Leu Tyr Phe Asp Pro Glu Glu Val Val Ile Ala Glu  
 195 200 205  
 Ala Arg Lys Asp Ile Glu Gly Ile Arg Gly Leu Phe Val Asp Gly Gly  
 210 215 220  
 Val Thr Pro His Asn Asn Pro Ser Leu Ala Met Leu Leu Leu Ala Leu  
 225 230 235 240  
 Leu Asp Ala Tyr Arg Leu Arg Trp Glu Thr Gly Pro Asp Lys Leu Thr  
 245 250 255  
 Val Val Ser Ile Gly Thr Gly Thr His Arg Asp Arg Val Val Pro Asp  
 260 265 270  
 Thr Leu Gly Met Gly Lys Asn Ala Lys Ile Ala Leu Arg Ala Met Ser  
 275 280 285  
 Ser Leu Met Asn Asp Val His Glu Leu Ala Leu Thr Gln Met Gln Tyr  
 290 295 300  
 Leu Gly Glu Thr Leu Thr Pro Trp Arg Ile Asn Asp Glu Leu Gly Asp  
 305 310 315 320  
 Met Arg Thr Glu Arg Pro Pro Gln Gly Lys Leu Phe Arg Phe Leu Arg  
 325 330 335  
 Tyr Asp Val Arg Leu Glu Leu Asp Trp Ile Asn Glu Asp Glu Glu Arg  
 340 345 350  
 Arg Arg Lys Ile Lys Asn Lys Phe Lys Arg Glu Leu Thr Glu Thr Asp  
 355 360 365  
 Met Ile Arg Leu Arg Ser Leu Asp Asp Pro Thr Thr Ile Pro Asp Leu  
 370 375 380  
 Tyr Met Leu Ala Gln Val Ala Ala Glu Glu Gln Val Lys Ala Glu His  
 385 390 395 400  
 Trp Leu Gly Asp Val Pro Glu Trp Ser Glu Gly Ala Arg Pro Cys Ala

				405						410					415				
Pro	Arg	Arg	His	Leu	Pro	Pro	Thr	Pro	Pro	Gly	Arg	Ser	Glu	Asp	Ser				
			420					425					430						
Ala	Arg	Phe	Arg	Ala	Glu	Lys	Ala	Val	Gly	Glu	Trp	Leu	Ser	Phe	Ala				
		435					440					445							
Arg	Ala	Asn	Ile	Thr	Arg	Leu	Met	Ser	Arg	Lys	Pro	Pro	Gly						
	450					455					460								

<210> 37  
 <211> 1329  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 37  
 atgagaaatt tcagcaaggg attgaccagt attttgctta gcatagcgac atccaccagt 60  
 gcgatggcct ttaccagat cggggccggc ggagcgattc cgatgggcca tgagtggcta 120  
 acccgccgct cggcgctgga actgctgaat gccgacaatc tggtcggcaa tgaccgggcc 180  
 gaccacgct tgggctggag cgaaggtctc gccacaatc tcgatctctc gaatgccag 240  
 aacgaagtgc agcgcacaa gagcattacc aagagccacg ccctgtatga gccgcgttac 300  
 gatgacgttt tcgccgccat cgtcggcgag cgctggggtg ataccgccgg tttcaacgtg 360  
 gccaaggcca ccgtcggcaa gatcgattgc ttcagcgccg tcgcgcaaga gcccgcgat 420  
 gtgcaacaag accatttcat gcgccgttat gacgacgtgg gtggacaagg gggcgtgaac 480  
 gctgcccgcc gcgcgcagca gcgctttatc aatcacttcg tcaacgcagc catggccgaa 540  
 gagaagagca tcaaggcatg ggatggcggc ggttattctt cgctggaaaa agtcagccac 600  
 aactacttct tgtttggcgg cgccgttcat ttgttccagg attctttcag ccccgaaacac 660  
 accgtgcgcc tgcctgaaga caattacgtc aaagtccgtc aggtcaaggc gtatctctgc 720  
 tctgaagggtg ccgaacagca tacgcacaac acgcaagatg ccatcaactt caccagcggc 780  
 gatgtcatct ggaaacagaa caccgctctg gatgcaggct ggagcaccta caaggccagc 840  
 aacatgaagc cgggtggcatt ggttgccctc gaagccagca aagatttgtg ggccgccttt 900  
 attcgcacca tggccgtttc ccgcgaggag cgtcgcgcgg tcgccgaaca ggaagcgcag 960  
 gctctcgtca atcactgggt gtcgttcgac gaacaggaaa tgctgaactg gtacgaagaa 1020  
 gaagagcacc gcgatcatac gtacgtcaag gaaccgggcc agagcggccc aggttcgtcg 1080  
 ttattcgatt gcattggttg tctgggtgtg gcctcgggca gtcaggcgca acgggtggcg 1140  
 gaactcgatc agcaacgccg ccaatgtttg ttcaacgtca aggccgtac tggctatggc 1200  
 gatctgaatg atccacacat ggatattccg tacaactggc aatgggtgtc gtcgacgcaa 1260  
 tggaaaatcc ctgcggccga ctggaaaatc ccgcagctgc ccgccgattc agggaaatca 1320  
 gtcgtcatc 1329

<210> 38  
 <211> 443  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(23)

<400> 38  
 Met Arg Asn Phe Ser Lys Gly Leu Thr Ser Ile Leu Leu Ser Ile Ala  
 1 5 10 15  
 Thr Ser Thr Ser Ala Met Ala Phe Thr Gln Ile Gly Ala Gly Gly Ala  
 20 25 30  
 Ile Pro Met Gly His Glu Trp Leu Thr Arg Arg Ser Ala Leu Glu Leu  
 35 40 45  
 Leu Asn Ala Asp Asn Leu Val Gly Asn Asp Pro Ala Asp Pro Arg Leu  
 50 55 60  
 Gly Trp Ser Glu Gly Leu Ala Asn Asn Leu Asp Leu Ser Asn Ala Gln  
 65 70 75 80  
 Asn Glu Val Gln Arg Ile Lys Ser Ile Thr Lys Ser His Ala Leu Tyr



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aacagcggct actccggcat ccaggccatc gccaacgagg acgggtccga cggcaccgtg      600
cgcatcggca ccgccaacct gcaggcggcg cttgcgaagg tgggtgtccc gcccgggccc      660
gtcgcgccgg tgggtgcagtt ccgcaacatc gcgggcgcca ccgcgttcgc catcgtcgac      720
ggcgacaacc attccgacat caccatgaag gacaagccgt cgaagaccgg catccgcgag      780
gaactgatcc tcggcgcgct gaagggtgcgc gacgccgact tccccgagaa cgccgacggc      840
gcgttcccgt ggcaggcgaa gctcgacgcg aaggccgggt cggccaaggt gtcttcgccc      900
gggcgccaga acaccgtggt gcacctcacc gacagcttcg gcgacgacgt cgtcgatttc      960
ttcttcgagt tctggcgagc cgaacgcagc gacaagggtg tcgagcagcg cttctacaag     1020
gacgtcatcg acgacgtgca cgtgtacgac ggcaacggcg cgtggcgctc gctcaacctc     1080
gacctcgaca agttcgaggc gctgcgcaag gacccgaagc tcggcttcga gaaactgctg     1140
gtcagcgtgt tcgcctcgcc cgcgaagaag ggcgacgcca aggtcggcta cagcaccgcc     1200
accggccgcg acatcggcgc ctggcacgtc gaaggccgtg acttcgcaa ggccttcacg     1260
ccgcaccgca ccctgttcgt cgacatcgag atcccacgca tcgtcgacga cgcggtgttc     1320
cggttccggg aatag                                     1335

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<210> 40

<211> 444

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 40

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Met Ala Asn Pro Ile Val Ile Ile His Gly Trp Ser Asp Asp Phe Gly
 1          5          10          15
Ser Phe Arg Lys Leu Arg Asp Phe Leu Ser Thr Asn Leu Gly Val Pro
          20          25          30
Ala Lys Ile Leu Lys Leu Gly Asp Trp Ile Ser Leu Asp Asp Asp Val
          35          40          45
Gly Tyr Ala Asp Ile Ala Met Ala Leu Glu Arg Ala Trp Lys Ala Glu
          50          55          60
Lys Leu Pro Thr Ala Pro Arg Ser Val Asp Val Val Val His Ser Thr
          65          70          75          80
Gly Ala Leu Val Val Arg Glu Trp Met Thr Arg Tyr His Ala Pro Glu
          85          90          95
Thr Val Pro Ile Gln Arg Phe Leu His Leu Ala Pro Ala Asn Phe Gly
          100          105          110
Ser His Leu Ala His Lys Gly Arg Ser Phe Ile Gly Arg Ala Val Lys
          115          120          125
Gly Trp Lys Thr Gly Phe Glu Thr Gly Thr Arg Ile Leu Arg Gly Leu
          130          135          140
Glu Leu Ala Ser Pro Tyr Ser Arg Ala Leu Ala Glu Arg Asp Leu Phe
          145          150          155          160
Val Ala Pro Ser Lys Arg Trp Tyr Gly Ala Gly Arg Ile Leu Ala Thr
          165          170          175
Val Leu Val Gly Asn Ser Gly Tyr Ser Gly Ile Gln Ala Ile Ala Asn
          180          185          190
Glu Asp Gly Ser Asp Gly Thr Val Arg Ile Gly Thr Ala Asn Leu Gln
          195          200          205
Ala Ala Leu Ala Lys Val Val Phe Pro Pro Gly Pro Val Ala Pro Val
          210          215          220
Val Gln Phe Arg Asn Ile Ala Gly Ala Thr Ala Phe Ala Ile Val Asp
          225          230          235          240
Gly Asp Asn His Ser Asp Ile Thr Met Lys Asp Lys Pro Ser Lys Thr
          245          250          255
Gly Ile Arg Glu Glu Leu Ile Leu Gly Ala Leu Lys Val Arg Asp Ala
          260          265          270
Asp Phe Pro Glu Asn Ala Asp Gly Ala Phe Pro Trp Gln Ala Lys Leu
          275          280          285
Asp Ala Lys Ala Gly Ala Ala Lys Val Ser Ser Pro Gly Arg Gln Asn
          290          295          300
Thr Val Val His Leu Thr Asp Ser Phe Gly Asp Asp Val Val Asp Phe
          305          310          315          320

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Phe	Phe	Glu	Phe	Trp	Arg	Ser	Glu	Arg	Ser	Asp	Lys	Val	Phe	Glu	Gln
				325					330					335	
Arg	Phe	Tyr	Lys	Asp	Val	Ile	Asp	Asp	Val	His	Val	Tyr	Asp	Gly	Asn
			340					345					350		
Gly	Ala	Trp	Arg	Ser	Leu	Asn	Leu	Asp	Leu	Asp	Lys	Phe	Glu	Ala	Leu
		355					360					365			
Arg	Lys	Asp	Pro	Lys	Leu	Gly	Phe	Glu	Lys	Leu	Leu	Val	Ser	Val	Phe
	370					375					380				
Ala	Ser	Pro	Ala	Lys	Lys	Gly	Asp	Ala	Lys	Val	Gly	Tyr	Ser	Thr	Ala
385					390					395					400
Thr	Gly	Arg	Asp	Ile	Gly	Ala	Trp	His	Val	Glu	Gly	Arg	Asp	Phe	Ala
				405					410					415	
Lys	Ala	Phe	Thr	Pro	His	Arg	Thr	Leu	Phe	Val	Asp	Ile	Glu	Ile	Pro
			420					425					430		
Arg	Ile	Val	Asp	Asp	Ala	Val	Phe	Arg	Phe	Arg	Glu				
		435					440								

<210> 41  
 <211> 1419  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 41

atgacgctcc	gatcaacgga	ctatgcgctg	ctggcgcagg	agagctacca	cgacagccag	60
gtggacgccg	acgtcaagct	ggatggcgtg	gcgtataaag	tcttcgccac	caccagcgac	120
gggctcaccg	gattccaggc	cacggcctac	cagcgccagg	acaccggcga	ggtagtgatt	180
gcgtaccgcg	gcacggagtt	tgatcgcgag	cccgtccgcg	acggcggcgt	cgatgcgggc	240
atgggtgctgc	tcgggtgtcaa	cgcacaggca	ccagcgctcg	aagtgttcac	ccggcaagtgc	300
atcgagaagg	cgaaacacga	agccgagctc	aacgaccgcg	aaccgcagat	caccgtcacc	360
ggccattccc	tcggcggcac	cctcgccgag	atcaacgccg	cgaagtacgg	cctccatggc	420
gaaaccttca	acgcctacgg	cgcagccagc	ctcaagggtg	ttccggaggg	cggcgatacc	480
gtcatcgacc	acgtccgtgc	cggcgatctc	gtcagcgcg	ccagccccc	ctacgggcag	540
gtacgcgtct	acgcggcgca	gcaggacatc	gatacgctgc	aacacgccgg	ttaccgcgat	600
gacagcggca	tcctcagctt	gcgcaaccgc	atcaaggcca	cggatttcga	tgcccattgc	660
atcgataact	tcgtgccc	cagcaagctg	ctcggctcag	cgatcatcgc	gccggaaaac	720
gtggcgcgtt	acgatgccc	caaaggcatg	gtcgaccgtt	accgcgatga	cgtggccgat	780
atccgcaagg	gcattctcgg	gccctgggaa	atccccaagg	ccatcggcga	gctgaaggac	840
accctggagc	acgaagcctt	cgaactcgcc	ggcaagggca	ttctcgcggt	ggagcacggc	900
ttcgaacatc	tcaaggagga	gatcggcgaa	ggcatccacg	ccgtggagga	gaaagcttcc	960
agcgcgtggc	ataccctcac	ccatcccaag	gaatggttcg	agcacgataa	acccaagggtg	1020
accctggacc	acccggacca	ccccgaccat	gccctgttca	agcaggcgca	gggcgcgggtg	1080
cacacagtgc	atgcctcgca	cggccgcacc	cctgacaaga	ccagcgacca	gatcgccggc	1140
tcgctgggtg	tatcggcacg	ccgtgacggc	cttgagcggg	tagaccgcgc	tgtactcagc	1200
gatgacgcca	accgcctgta	cgggtgtgcg	gggtgcgggtg	actcgccgct	gaagcaggtc	1260
accgaagtga	acaccgccac	cgccgcgcag	acatcgctcc	agcagagcag	cgtggcctgg	1320
cagcaacagg	cagaaatcgc	gcgtcagaac	caggcgga	gccaggctca	gcgcattggac	1380
cagcaggtgc	cgccgcaggc	acccgcgcac	ggcatgtaa			1419

<210> 42  
 <211> 472  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 42

Met	Thr	Leu	Arg	Ser	Thr	Asp	Tyr	Ala	Leu	Leu	Ala	Gln	Glu	Ser	Tyr
1				5					10					15	
His	Asp	Ser	Gln	Val	Asp	Ala	Asp	Val	Lys	Leu	Asp	Gly	Val	Ala	Tyr
			20					25					30		



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<400> 43
atgtcgtatta ccgtttaccg gaagccctcc ggcggtttg gagcgatagt tcctcaagcg      60
aaaattgaga accttgtttt cgagggcggc ggaccaaagg gcctggtcta tgtcggcgcg      120
gtcgtggttc tcggtgaaag gggactgctg gaagggatcg caaatgtcgg cggcgttca      180
gcaggcgcca tgaccgtctt agccgtcggt ctgggactga gcccagga aattcgcgcg      240
gtcgtcttta accagaacat tgcggacctc accgatatcg agaagaccgt cgagccgtcc      300
tccgggatca caggcatgtt caagagcgtg ttcaagaagg gttggcaggc ggtgcgcaac      360
gtaaccggca cctctgacga gcgcgggcgc gggctctatc gcggcgagaa gttgcgagcc      420
tggtatcagag acctgattgc acagcgagtc gaggcagggc gctcagaggt gctgagccga      480
gccgacgccg acgggcggaa cttctatgag aaagccgccg caaagaaggg cgccctgaca      540
tttgccgaac ttgatcgggt ggcgcaaattg gcgcggggcc tgcggcttcg ccgcctggcc      600
ttcaccggaa ccaacttcac gtcgaagaag ctcgaagtgt tcagtctgca cgagaccccg      660
gacatgccga tcgacgtcgc ggtacgcatac tcggcatcgt tgccatgggt tttcaaattcc      720
gtgaaatgga acggctccga atacatagat ggcggtatgcc tgtcgaactt cccaatgccg      780
atattcgacg tcgatcccta tcgtggcgac gcctcgtcga agatccggct cggcattctc      840
ggccagaacc tcgcgacgct cggcttcaag gtcgacagcg aggaggagat ccgcgacatc      900
ctctggcgta gcccagagag cagcagcgac ggctttttcc aaggcatcct gtcaagcgtg      960
aaagcctcgg cagaacactg ggtcgtcggc atcgatgtcg agggcgccac ccgcgcgtcg      1020
aacgtggccg ttcacggcaa gtatgctcag cgaacgatcc agataccgga cctcggatat      1080
agcacgttca agttcgatct ctcagacgcg gacaaggagc gcatggccga ggccggcgca      1140
aaggccacgc gggaatggct ggcgctgtac ttcgacgacg ccggaataga ggtcgaattt      1200
tctgatccga acgaattgcg cggccagtgt tccgacgccg cattcgcaga cctcagaggat      1260
tcgtttcgag ccttgatcgc ggcctag                                     1287

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<210> 44
<211> 428
<212> PRT
<213> Unknown

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<220>
<223> Obtained from an environmental sample.

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<400> 44
Met Ser Ile Thr Val Tyr Arg Lys Pro Ser Gly Gly Phe Gly Ala Ile
 1           5           10           15
Val Pro Gln Ala Lys Ile Glu Asn Leu Val Phe Glu Gly Gly Gly Pro
      20           25           30
Lys Gly Leu Val Tyr Val Gly Ala Val Glu Val Leu Gly Glu Arg Gly
      35           40           45
Leu Leu Glu Gly Ile Ala Asn Val Gly Gly Ala Ser Ala Gly Ala Met
      50           55           60
Thr Ala Leu Ala Val Gly Leu Gly Leu Ser Pro Arg Glu Ile Arg Ala
      65           70           75           80
Val Val Phe Asn Gln Asn Ile Ala Asp Leu Thr Asp Ile Glu Lys Thr
      85           90           95
Val Glu Pro Ser Ser Gly Ile Thr Gly Met Phe Lys Ser Val Phe Lys
      100          105          110
Lys Gly Trp Gln Ala Val Arg Asn Val Thr Gly Thr Ser Asp Glu Arg
      115          120          125
Gly Arg Gly Leu Tyr Arg Gly Glu Lys Leu Arg Ala Trp Ile Arg Asp
      130          135          140
Leu Ile Ala Gln Arg Val Glu Ala Gly Arg Ser Glu Val Leu Ser Arg
      145          150          155          160
Ala Asp Ala Asp Gly Arg Asn Phe Tyr Glu Lys Ala Ala Ala Lys Lys
      165          170          175
Gly Ala Leu Thr Phe Ala Glu Leu Asp Arg Val Ala Gln Met Ala Pro
      180          185          190
Gly Leu Arg Leu Arg Arg Leu Ala Phe Thr Gly Thr Asn Phe Thr Ser
      195          200          205
Lys Lys Leu Glu Val Phe Ser Leu His Glu Thr Pro Asp Met Pro Ile
      210          215          220
Asp Val Ala Val Arg Ile Ser Ala Ser Leu Pro Trp Phe Phe Lys Ser
      225          230          235          240

```

Val	Lys	Trp	Asn	Gly	Ser	Glu	Tyr	Ile	Asp	Gly	Gly	Cys	Leu	Ser	Asn		
				245					250					255			
Phe	Pro	Met	Pro	Ile	Phe	Asp	Val	Asp	Pro	Tyr	Arg	Gly	Asp	Ala	Ser		
			260					265					270				
Ser	Lys	Ile	Arg	Leu	Gly	Ile	Phe	Gly	Gln	Asn	Leu	Ala	Thr	Leu	Gly		
		275					280					285					
Phe	Lys	Val	Asp	Ser	Glu	Glu	Ile	Arg	Asp	Ile	Leu	Trp	Arg	Ser			
	290				295					300							
Pro	Glu	Ser	Thr	Ser	Asp	Gly	Phe	Phe	Gln	Gly	Ile	Leu	Ser	Ser	Val		
305					310				315						320		
Lys	Ala	Ser	Ala	Glu	His	Trp	Val	Val	Gly	Ile	Asp	Val	Glu	Gly	Ala		
			325						330					335			
Thr	Arg	Ala	Ser	Asn	Val	Ala	Val	His	Gly	Lys	Tyr	Ala	Gln	Arg	Thr		
		340						345					350				
Ile	Gln	Ile	Pro	Asp	Leu	Gly	Tyr	Ser	Thr	Phe	Lys	Phe	Asp	Leu	Ser		
	355					360						365					
Asp	Ala	Asp	Lys	Glu	Arg	Met	Ala	Glu	Ala	Gly	Ala	Lys	Ala	Thr	Arg		
	370				375						380						
Glu	Trp	Leu	Ala	Leu	Tyr	Phe	Asp	Asp	Ala	Gly	Ile	Glu	Val	Glu	Phe		
385					390					395					400		
Ser	Asp	Pro	Asn	Glu	Leu	Arg	Gly	Gln	Leu	Ser	Asp	Ala	Ala	Phe	Ala		
			405					410						415			
Asp	Leu	Glu	Asp	Ser	Phe	Arg	Ala	Leu	Ile	Ala	Ala						
		420						425									

<210> 45  
 <211> 1038  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 45

atgacaaccc	aatttagaaa	cttgatattt	gaaggcggcg	gtgtaaaagg	tgttgcttac	60
attggcgcca	tgcagattct	cgaaaatcgt	ggcgtgttgc	aagatattca	ccgagtcgga	120
gggtgcagtg	cggttgcgat	taatgcgctg	atTTTTgCGC	tgggttacac	ggttcgtgag	180
caaaaagaga	tcttacaagc	caccgatttt	aaccagttta	tggataactc	ttgggggtgtt	240
attcgtgata	ttcgcaggct	tgctcgagac	tttggctgga	ataagggtga	tttctttagt	300
agctggatag	gtgatttgat	tcatcgtcgt	ttggggaatc	gccgagcgac	gttcaaagat	360
ctgcaaaatg	ccaagcttcc	tgatctttat	gtcatcggtg	ctaactctgt	tacagggttt	420
gcagagggtt	tttctgccga	aagacacccc	gatatggagc	tggcgacagc	ggtgcgtatc	480
tccatgtcga	taccgctggt	ctttgcagcc	gtgcgtcacg	gtgatcgaca	agatgtgtat	540
gtcgaatggg	gtgttcaact	taactatccg	attaaactgt	ttgatcgggg	gcgttacatt	600
gatctggcca	aagatcccgg	tgctgttcgg	cgaacgggtt	attacaacaa	agaaaacgct	660
cgctttcagc	ttgagcggcc	cggtcatagc	ccctatgttt	acaatcgcca	gaccttgggt	720
ttgcgtcttg	atagtcgcga	gcagataggg	ctctttcgtt	atgacgaacc	cctcaagggc	780
aaacccatta	agtccttcac	tgactacgct	cgacaacttt	tcggtgcgtt	gatgaatgca	840
caggaaaaga	ttcatctaca	tggcgatgat	tggcaacgca	cggtctatat	cgatacattg	900
gatgtgggta	cgacggactt	caatctttct	gatgcaacta	agcaagcact	gattgagcaa	960
ggaattaacg	gcaccgaaaa	ttatttcgag	tggtttgata	atccgtaga	gaagcccgtg	1020
aatagagtgg	agtcatag					1038

<210> 46  
 <211> 345  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 46

Met	Thr	Thr	Gln	Phe	Arg	Asn	Leu	Ile	Phe	Glu	Gly	Gly	Gly	Val	Lys
1				5					10					15	



Gly	Val	Ala	Tyr	Ile	Gly	Ala	Met	Gln	Ile	Leu	Glu	Asn	Arg	Gly	Val
		20						25					30		
Leu	Gln	Asp	Ile	His	Arg	Val	Gly	Gly	Cys	Ser	Ala	Gly	Ala	Ile	Asn
	35					40					45				
Ala	Leu	Ile	Phe	Ala	Leu	Gly	Tyr	Thr	Val	Arg	Glu	Gln	Lys	Glu	Ile
	50				55					60					
Leu	Gln	Ala	Thr	Asp	Phe	Asn	Gln	Phe	Met	Asp	Asn	Ser	Trp	Gly	Val
65				70					75					80	
Ile	Arg	Asp	Ile	Arg	Arg	Leu	Ala	Arg	Asp	Phe	Gly	Trp	Asn	Lys	Gly
			85					90					95		
Asp	Phe	Phe	Ser	Ser	Trp	Ile	Gly	Asp	Leu	Ile	His	Arg	Arg	Leu	Gly
			100					105					110		
Asn	Arg	Arg	Ala	Thr	Phe	Lys	Asp	Leu	Gln	Asn	Ala	Lys	Leu	Pro	Asp
	115						120					125			
Leu	Tyr	Val	Ile	Gly	Thr	Asn	Leu	Ser	Thr	Gly	Phe	Ala	Glu	Val	Phe
	130					135					140				
Ser	Ala	Glu	Arg	His	Pro	Asp	Met	Glu	Leu	Ala	Thr	Ala	Val	Arg	Ile
145					150				155					160	
Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ala	Ala	Val	Arg	His	Gly	Asp	Arg
			165					170					175		
Gln	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Ile	Lys
		180						185					190		
Leu	Phe	Asp	Arg	Glu	Arg	Tyr	Ile	Asp	Leu	Ala	Lys	Asp	Pro	Gly	Ala
	195						200					205			
Val	Arg	Arg	Thr	Gly	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Gln	Leu
	210					215					220				
Glu	Arg	Pro	Gly	His	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu	Gly
225					230					235				240	
Leu	Arg	Leu	Asp	Ser	Arg	Glu	Gln	Ile	Gly	Leu	Phe	Arg	Tyr	Asp	Glu
			245						250					255	
Pro	Leu	Lys	Gly	Lys	Pro	Ile	Lys	Ser	Phe	Thr	Asp	Tyr	Ala	Arg	Gln
		260						265					270		
Leu	Phe	Gly	Ala	Leu	Met	Asn	Ala	Gln	Glu	Lys	Ile	His	Leu	His	Gly
	275						280					285			
Asp	Asp	Trp	Gln	Arg	Thr	Val	Tyr	Ile	Asp	Thr	Leu	Asp	Val	Gly	Thr
	290					295					300				
Thr	Asp	Phe	Asn	Leu	Ser	Asp	Ala	Thr	Lys	Gln	Ala	Leu	Ile	Glu	Gln
305					310					315				320	
Gly	Ile	Asn	Gly	Thr	Glu	Asn	Tyr	Phe	Glu	Trp	Phe	Asp	Asn	Pro	Leu
			325						330					335	
Glu	Lys	Pro	Val	Asn	Arg	Val	Glu	Ser							
		340						345							

<210> 47  
 <211> 1476  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 47	
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gaacttccgt tgagattaaa ggccgaagca ataagcagga acctgaacat cgaagtaaat	120
gaaattttcc tgggccgtta tatcagcttt aatgataaca ttacattaga tgacgtttcg	180
cgggctttta atacggccat tagcgaacag ttagacaata cagacagggt tatatgtatt	240
acacattcta ccggagggcc gggtattcgc gaatgggttaa ataaatacta ttataatgaa	300
cgtccaccac taagtcattt aataatgctt gcaccggcca attttggttc ggcattggct	360
cgtttaggga aaagtaaatt aagccgtatt aaaagttggt ttgaagggtg agaaccaggg	420
cagaaaattt tagactggct ggagtgtgga agcaaccaat cgtgggttact aaataaagac	480
tgatcgaca atggcaattt tcagattggc gctgataagt atttcccgtt tgttatcatt	540
ggccagtcga ttgatcgtaa actttacgat catcttaact catataccgg cgagcttggg	600
tccgatggtg tagttcgcac ctcaggagct aatcttaatt cgcggtatat taagcttggt	660
caggacagaa atacaatagc taatggaaat atttccagta cattacgaat tgccgaatat	720

agagaagctt	gtgcaacgcc	catacgggta	gtagagagta	aatcgcatte	gggcgatgaa	780
atgggtatca	tgaaaagtgt	taaaaaagaa	attactgatg	ccggaagcaa	ggaaacaata	840
aatgccatat	tcgagtgtat	tgaagttaca	aacaacgaac	aatatcaatc	cttaattact	900
aaatttgata	acgaaacagc	acaggtacaa	aaggatgagc	tgattgaaac	ggaaacagaa	960
ttatttttaa	tgcaccgtca	tttcattcac	gaccgctttt	cgcaattcat	ttttaaagta	1020
actgactcag	aagggaacc	tgttacagat	tatgatttaa	tttttacagc	cgggccacaa	1080
aacgatgcga	accacttacc	ggaaggattt	gccattgaca	ggcaacaaaa	ttcaaataat	1140
aacgaaacca	ttacgtatta	ttttaattac	gatgtattga	aaggggctcc	cgcaaagtgt	1200
taccgggacg	cattaccagg	tatttctatg	ctggggctaa	ccataaacc	aaggccggac	1260
gaagggtttg	taagatatat	cccatgcagc	attaaagcca	attccgagtt	gatggaaaaa	1320
gccttttaaac	caaattctac	taccttggtc	gatattgtta	ttcaacgtgt	agttagcaaa	1380
gaagtttttc	ggttgaaaaa	gttaactgg	agctcaatgc	caacagacaa	agatgggaat	1440
tttaaaaata	ctgaacctgg	taacgaaata	atatga			1476

<210> 48  
 <211> 491  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 48

Met	Ser	Thr	Lys	Val	Val	Phe	Val	His	Gly	Trp	Ser	Val	Thr	Asn	Leu
1				5					10					15	
Asn	Thr	Tyr	Gly	Glu	Leu	Pro	Leu	Arg	Leu	Lys	Ala	Glu	Ala	Ile	Ser
			20					25					30		
Arg	Asn	Leu	Asn	Ile	Glu	Val	Asn	Glu	Ile	Phe	Leu	Gly	Arg	Tyr	Ile
		35					40					45			
Ser	Phe	Asn	Asp	Asn	Ile	Thr	Leu	Asp	Asp	Val	Ser	Arg	Ala	Phe	Asn
	50					55					60				
Thr	Ala	Ile	Ser	Glu	Gln	Leu	Asp	Asn	Thr	Asp	Arg	Phe	Ile	Cys	Ile
65					70					75				80	
Thr	His	Ser	Thr	Gly	Gly	Pro	Val	Ile	Arg	Glu	Trp	Leu	Asn	Lys	Tyr
				85					90					95	
Tyr	Tyr	Asn	Glu	Arg	Pro	Pro	Leu	Ser	His	Leu	Ile	Met	Leu	Ala	Pro
			100					105					110		
Ala	Asn	Phe	Gly	Ser	Ala	Leu	Ala	Arg	Leu	Gly	Lys	Ser	Lys	Leu	Ser
		115					120					125			
Arg	Ile	Lys	Ser	Trp	Phe	Glu	Gly	Val	Glu	Pro	Gly	Gln	Lys	Ile	Leu
	130					135					140				
Asp	Trp	Leu	Glu	Cys	Gly	Ser	Asn	Gln	Ser	Trp	Leu	Leu	Asn	Lys	Asp
145					150					155					160
Trp	Ile	Asp	Asn	Gly	Asn	Phe	Gln	Ile	Gly	Ala	Asp	Lys	Tyr	Phe	Pro
			165						170					175	
Phe	Val	Ile	Ile	Gly	Gln	Ser	Ile	Asp	Arg	Lys	Leu	Tyr	Asp	His	Leu
			180					185					190		
Asn	Ser	Tyr	Thr	Gly	Glu	Leu	Gly	Ser	Asp	Gly	Val	Val	Arg	Thr	Ser
		195					200					205			
Gly	Ala	Asn	Leu	Asn	Ser	Arg	Tyr	Ile	Lys	Leu	Val	Gln	Asp	Arg	Asn
	210					215					220				
Thr	Ile	Ala	Asn	Gly	Asn	Ile	Ser	Ser	Thr	Leu	Arg	Ile	Ala	Glu	Tyr
225					230					235					240
Arg	Glu	Ala	Cys	Ala	Thr	Pro	Ile	Arg	Val	Val	Arg	Gly	Lys	Ser	His
			245						250					255	
Ser	Gly	Asp	Glu	Met	Gly	Ile	Met	Lys	Ser	Val	Lys	Lys	Glu	Ile	Thr
			260					265					270		
Asp	Ala	Gly	Ser	Lys	Glu	Thr	Ile	Asn	Ala	Ile	Phe	Glu	Cys	Ile	Glu
		275					280					285			
Val	Thr	Asn	Asn	Glu	Gln	Tyr	Gln	Ser	Leu	Ile	Thr	Lys	Phe	Asp	Asn
	290					295					300				
Glu	Thr	Ala	Gln	Val	Gln	Lys	Asp	Glu	Leu	Ile	Glu	Thr	Glu	Thr	Glu
305					310					315					320
Leu	Phe	Leu	Met	His	Arg	His	Phe	Ile	His	Asp	Arg	Phe	Ser	Gln	Phe



<400> 50

Met	Asn	Phe	Trp	Ser	Phe	Leu	Leu	Ser	Ile	Thr	Leu	Pro	Met	Gly	Val
1				5					10					15	
Gly	Val	Ala	His	Ala	Gln	Pro	Asp	Thr	Asp	Phe	Gln	Ser	Ala	Glu	Pro
			20					25					30		
Tyr	Val	Ser	Ser	Ala	Pro	Met	Gly	Arg	Gln	Thr	Tyr	Thr	Tyr	Val	Arg
		35					40					45			
Cys	Trp	Tyr	Arg	Thr	Ser	His	Ser	Thr	Asp	Asp	Pro	Ala	Thr	Asp	Trp
	50					55					60				
Gln	Trp	Ala	Arg	Asn	Ser	Asp	Gly	Ser	Tyr	Phe	Thr	Leu	Gln	Gly	Tyr
65				70						75					80
Trp	Trp	Ser	Ser	Val	Arg	Leu	Lys	Asn	Met	Phe	Tyr	Thr	Gln	Thr	Ser
				85					90					95	
Gln	Asn	Val	Ile	Arg	Gln	Arg	Cys	Glu	His	Thr	Leu	Ser	Ile	Asn	His
		100						105					110		
Asp	Asn	Ala	Asp	Ile	Thr	Phe	Tyr	Ala	Ala	Asp	Asn	Arg	Phe	Ser	Leu
		115					120					125			
Asn	His	Thr	Ile	Trp	Ser	Asn	Asp	Pro	Val	Met	Gln	Ala	Asn	Gln	Ile
	130					135					140				
Asn	Lys	Ile	Val	Ala	Phe	Gly	Asp	Ser	Leu	Ser	Asp	Thr	Gly	Asn	Ile
145				150						155					160
Phe	Asn	Ala	Ala	Gln	Trp	Arg	Phe	Pro	Asn	Pro	Asn	Ser	Trp	Phe	Leu
			165					170						175	
Gly	His	Phe	Ser	Asn	Gly	Leu	Val	Trp	Thr	Glu	Tyr	Leu	Ala	Lys	Gln
		180						185					190		
Lys	Asn	Leu	Pro	Ile	Tyr	Asn	Trp	Ala	Val	Gly	Gly	Ala	Ala	Gly	Ala
	195						200					205			
Asn	Gln	Tyr	Val	Ala	Leu	Thr	Gly	Val	Thr	Gly	Gln	Val	Asn	Ser	Tyr
	210					215					220				
Leu	Gln	Tyr	Met	Gly	Lys	Ala	Gln	Asn	Tyr	Arg	Pro	Gln	Asn	Thr	Leu
225				230						235					240
Tyr	Thr	Leu	Val	Phe	Gly	Leu	Asn	Asp	Phe	Met	Asn	Tyr	Asn	Arg	Glu
			245						250					255	
Val	Ala	Glu	Val	Ala	Ala	Asp	Phe	Glu	Thr	Ala	Leu	Gln	Arg	Leu	Thr
		260						265					270		
Gln	Ala	Gly	Ala	Gln	Asn	Ile	Leu	Met	Met	Thr	Leu	Pro	Asp	Val	Thr
	275					280						285			
Lys	Ala	Pro	Gln	Phe	Thr	Tyr	Ser	Thr	Gln	Ala	Glu	Ile	Asp	Leu	Ile
	290					295					300				
Gln	Gly	Lys	Ile	Asn	Ala	Leu	Asn	Ile	Lys	Leu	Lys	Gln	Leu	Thr	Ala
305				310						315					320
Gln	Tyr	Ile	Leu	Gln	Gly	Tyr	Ala	Ile	His	Leu	Phe	Asp	Thr	Tyr	Glu
			325						330					335	
Leu	Phe	Asp	Ser	Met	Val	Ala	Glu	Pro	Glu	Lys	His	Gly	Phe	Ala	Asn
		340						345					350		
Ala	Ser	Glu	Pro	Cys	Leu	Asn	Leu	Thr	Arg	Ser	Ser	Ala	Ala	Asp	Tyr
		355					360					365			
Leu	Tyr	Arg	His	Pro	Ile	Thr	Asn	Thr	Cys	Ala	Arg	Tyr	Gly	Ala	Asp
	370					375					380				
Lys	Phe	Val	Phe	Trp	Asp	Val	Thr	His	Pro	Thr	Thr	Ala	Thr	His	Arg
385					390					395					400
Tyr	Ile	Ser	Gln	Thr	Leu	Leu	Ala	Pro	Gly	Asn	Gly	Leu	Gln	Tyr	Phe
			405						410					415	

Asn Phe

<210> 51

<211> 1482

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

```

<400> 51
atgacaatcc gctcaacgga ctatgcgctg ctgcgcgagg agagctacca cgacagccag      60
gtcgatgccg acgtcaaact cgatggcatc gcctacaagg tcttcgccac caccgatgac      120
ccgctcacgg gggtccaggc caccgcgtac cagcgccagg acaccggcga agtcgtcatc      180
gcctatcgtg gtacggaatt cgaccgcgag cccgttcgcg acggcggcgt cgatgccggc      240
atggtgctgc tgggggtgaa tgcccagtcg cctgcctccg agctatttac ccgcgaagtg      300
atcgagaagg cgacgcacga agccgaactc aatgaccgcg agccccggat caccgtgact      360
ggccactccc tcggcggcac cctcgccgaa atcaacgcgg ccaagtacgg cctgcacggc      420
gaaaccttca acgcatacgg tgcggccagc ctcaagggca tcccgggaagg cggcaatacc      480
gtgatcgacc acgtgcgcgc tggcgacctc gtcagcgccg ccagcccgca ttacggggcag      540
gtgcgcgtct acgcggccca gcaggatatac gacaccttgc agcatgccgg ctaccgcgac      600
gacagcggca tccttagcct gcgcaaccgg atcaaggcca cggatttcga cgcgcacgcc      660
atcgacaact tcgtgccgaa cagcaaactg cttggccagt cgatcatcgc gccggaaaac      720
gaagcccgtt acgaagccca caagggcatg gtcgaccgct accgcgatga cgtggctgac      780
atccgcatgc tcgtctccgc tcccctgaac atcccgcgca ccatcggcga tatcaaggat      840
gccgtggaac gcgaggcatt tgagctggct ggcaagggca tcctcgccgt tgaacacggc      900
atcgaagagg tcgtgcacga ggcaaaggaa ggcttcgagc acctcaagga aggctttgag      960
cacctgaagg aagaagtcag cgagggcttc catgccttcg aggaaaaggc ctccagcgcg     1020
tggcatacgc tgacctatcc caaggaatgg ttcgagcagc acaagccgca ggtcgccctg     1080
aaccacccac agcaccgcga caacgaactg ttcaagaagg tgctcgaagg cgtgcaccag     1140
gttgatgcga agcagggtcg ttcacccgac cagctcagtg agaacctggc cgcacgcgtt     1200
accgttgccg cagcgaagga aggcctggac aaggtcaacc acgtgctgct cgacgacccc     1260
ggcattcgca cctacgccgt gcagggtgag ctcaactcgc cgttgaagca ggtctccagt     1320
gtcgataacg cccaggcggt cgccacaccg gtggcccaga gcagcgcgca atggcagcag     1380
gctgccgagg cgcggcaggc acagcacaat gaggcgcttg cgcagcagca ggcgcaacag     1440
cagcagaaca accggcccaa ccatgggggtt gccggcccgct ga                        1482

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```

<210> 52
<211> 493
<212> PRT
<213> Unknown

```

```

<220>
<223> Obtained from an environmental sample.

```

```

<400> 52
Met Thr Ile Arg Ser Thr Asp Tyr Ala Leu Leu Ala Gln Glu Ser Tyr
 1           5           10           15
His Asp Ser Gln Val Asp Ala Asp Val Lys Leu Asp Gly Ile Ala Tyr
 20           25           30
Lys Val Phe Ala Thr Thr Asp Asp Pro Leu Thr Gly Phe Gln Ala Thr
 35           40           45
Ala Tyr Gln Arg Gln Asp Thr Gly Glu Val Val Ile Ala Tyr Arg Gly
 50           55           60
Thr Glu Phe Asp Arg Glu Pro Val Arg Asp Gly Gly Val Asp Ala Gly
 65           70           75           80
Met Val Leu Leu Gly Val Asn Ala Gln Ser Pro Ala Ser Glu Leu Phe
 85           90           95
Thr Arg Glu Val Ile Glu Lys Ala Thr His Glu Ala Glu Leu Asn Asp
 100          105          110
Arg Glu Pro Arg Ile Thr Val Thr Gly His Ser Leu Gly Gly Thr Leu
 115          120          125
Ala Glu Ile Asn Ala Ala Lys Tyr Gly Leu His Gly Glu Thr Phe Asn
 130          135          140
Ala Tyr Gly Ala Ala Ser Leu Lys Gly Ile Pro Glu Gly Gly Asn Thr
 145          150          155          160
Val Ile Asp His Val Arg Ala Gly Asp Leu Val Ser Ala Ala Ser Pro
 165          170          175
His Tyr Gly Gln Val Arg Val Tyr Ala Ala Gln Gln Asp Ile Asp Thr
 180          185          190
Leu Gln His Ala Gly Tyr Arg Asp Asp Ser Gly Ile Leu Ser Leu Arg
 195          200          205
Asn Pro Ile Lys Ala Thr Asp Phe Asp Ala His Ala Ile Asp Asn Phe
 210          215          220

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Val	Pro	Asn	Ser	Lys	Leu	Leu	Gly	Gln	Ser	Ile	Ile	Ala	Pro	Glu	Asn		
225					230					235					240		
Glu	Ala	Arg	Tyr	Glu	Ala	His	Lys	Gly	Met	Val	Asp	Arg	Tyr	Arg	Asp		
				245					250						255		
Asp	Val	Ala	Asp	Ile	Arg	Met	Leu	Val	Ser	Ala	Pro	Leu	Asn	Ile	Pro		
			260					265					270				
Arg	Thr	Ile	Gly	Asp	Ile	Lys	Asp	Ala	Val	Glu	Arg	Glu	Ala	Phe	Glu		
		275					280					285					
Leu	Ala	Gly	Lys	Gly	Ile	Leu	Ala	Val	Glu	His	Gly	Ile	Glu	Glu	Val		
	290					295					300						
Val	His	Glu	Ala	Lys	Glu	Gly	Phe	Glu	His	Leu	Lys	Glu	Gly	Phe	Glu		
305					310					315					320		
His	Leu	Lys	Glu	Glu	Val	Ser	Glu	Gly	Phe	His	Ala	Phe	Glu	Glu	Lys		
			325					330						335			
Ala	Ser	Ser	Ala	Trp	His	Thr	Leu	Thr	His	Pro	Lys	Glu	Trp	Phe	Glu		
			340					345					350				
His	Asp	Lys	Pro	Gln	Val	Ala	Leu	Asn	His	Pro	Gln	His	Pro	Asp	Asn		
		355					360					365					
Glu	Leu	Phe	Lys	Lys	Val	Leu	Glu	Gly	Val	His	Gln	Val	Asp	Ala	Lys		
	370					375					380						
Gln	Gly	Arg	Ser	Pro	Asp	Gln	Leu	Ser	Glu	Asn	Leu	Ala	Ala	Ser	Leu		
385					390					395					400		
Thr	Val	Ala	Ala	Arg	Lys	Glu	Gly	Leu	Asp	Lys	Val	Asn	His	Val	Leu		
			405						410					415			
Leu	Asp	Asp	Pro	Gly	Ile	Arg	Thr	Tyr	Ala	Val	Gln	Gly	Glu	Leu	Asn		
			420					425				430					
Ser	Pro	Leu	Lys	Gln	Val	Ser	Ser	Val	Asp	Asn	Ala	Gln	Ala	Val	Ala		
		435					440					445					
Thr	Pro	Val	Ala	Gln	Ser	Ser	Ala	Gln	Trp	Gln	Gln	Ala	Ala	Glu	Ala		
	450					455				460							
Arg	Gln	Ala	Gln	His	Asn	Glu	Ala	Leu	Ala	Gln	Gln	Gln	Ala	Gln	Gln		
465					470					475					480		
Gln	Gln	Asn	Asn	Arg	Pro	Asn	His	Gly	Val	Ala	Gly	Pro					
			485					490									

<210> 53  
 <211> 1491  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 53

atgcgtcagg	ttacattagt	atttgttcat	ggctacagcg	ttacaaacat	cgacacttat	60
ggtgaaatgc	cactcaggct	ccgcaacgaa	ggagccacac	gtgatataga	aataaaaatt	120
gagaacattt	tcttggggcg	ctacatcagc	tttaattgatg	atgtgagatt	aaatgatgtt	180
tccagagcat	tggaaacagc	cgtacaacaa	cagattgcac	cgggaaataa	aaacaattcc	240
cgttacgtat	tcatcaccca	ctctaccggc	ggaccggtag	tgagaaactg	gtgggatctg	300
tactataaaa	acagcacgaa	acaatgccct	atgagccacc	tcattatgct	ggctcctgcc	360
aattttggct	cggcactggc	acaactggga	aaaagcaaac	taagccgcat	taaatcctgg	420
ttcgatggtg	tggaaacccg	acagaatgta	ttgaattggc	tggaaactgg	aagcgcggaa	480
gcatggaagc	taaacaccga	ctggattaag	agtgatggaa	gtcagatctc	ggcacagggt	540
atttttccct	ttgtgatcat	aggctcaggac	attgaccgca	aattatacga	tcattttaaac	600
tcctacaccg	gtgagctggg	ttccgacggc	gtgggtgcgtt	cggccgcagc	caattttaaat	660
gctactttatg	taaaactcac	acaacctaaa	cccaccttgg	taaatggaaa	actggtaaca	720
ggtaatctgg	aaataggaga	agtaaaacaa	gcgcccttata	cacccatgcg	catcgtctca	780
aaaaaatcgc	attccaacaa	ggatatggga	attatgagaa	gtgtactgaa	atcaacaaat	840
gatgccaaaca	gcgcccgaac	ggtaaacgcc	atTTTTgtact	gcattaatgt	gaaaacctta	900
accgattacc	agagcattgc	cacacagttt	gatttcgcaa	caaaagacgt	gcaggaaaaat	960
tcaattattg	aaagggaaaa	aacgcccttt	ggaactaaaa	actatatcca	cgaccgtttc	1020
ttccagggtca	ttttcagagt	aacagacagt	gaaggttacc	cggttaccag	ttttgatctg	1080
atcctcaccg	gcggcgaaaa	aaatgatccc	aacgccttgc	ctcagggctt	ttttgtggac	1140
agacaatgca	acagtggtcaa	taaatcgacc	attactttatt	ttttaaatca	cgatattatg	1200



385		390		395		400
Asn Gly Thr Pro Ala	Ile Ala Gly Ile Arg Pro Ala Ser Lys Gly Met					
	405		410		415	
Glu Lys Leu Gly Leu Ile Ile Asn Pro Arg Pro Glu Glu Gly Phe Val						
	420		425		430	
Arg Tyr Ile Pro Cys Lys Ile Asn Thr Ser Pro Asp Leu Phe Asp Ala						
	435		440		445	
Ala Leu Lys Pro Asn Ala Thr Thr Leu Ile Asp Ile Val Leu Gln Arg						
	450		455		460	
Val Val Ser Thr Glu Val Phe Arg Phe Glu Gly Thr Asp Gly Val Thr						
	465		470		475	
Pro Pro Lys Lys Asp Phe Ser Lys Val Lys Pro Gly Thr Asp Ile Ile						
	485		490		495	

<210> 55  
 <211> 1041  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 55  
 atggcttcac aattcagaaa tctgggttttt gaaggaggcg gtgtgaaggg catcgcctat 60  
 atcggcgcca tgcaggtgct ggagcagcgg ggactgctca aggatattgt ccgggtggga 120  
 ggtaccagtg caggcgccat caacgcgctg atcttttcgc tgggctttac catcaaagag 180  
 cagcaggata ttctcaactc caccaacttc agggagttaa tggacagctc gttcgggttc 240  
 atccgaaact tccggagggt atggagcgaa ttcggttga accgcggcga tgtattttcg 300  
 gactgggccc gggagctggg gaaagagaag ctcggaacaa agaacgccac gttcggcgat 360  
 ctgaaaaagg cgaaacgtcc cgatctgtac gtgatcggca ccaatctctc tacgggggttt 420  
 tccgagacct tttcgacaga acgccacgcc gacatgcctc tggtagatgc ggtgcggata 480  
 agcatgtcga tcccgctctt ttttgctgca cggaggctgg gaaaacgtaa ggatgtgtat 540  
 gtggatggcg gggatgatgt caactatccc gtgaagctgt tgcacaggga gaagtatatc 600  
 gatttggaga aagagaatga ggcggcccgc tatgtggagt actacaatca agagaatgcc 660  
 cggttttctgc tcgagcggcc cggccgaagc ctttatgtgt ataaccggca gactctcggt 720  
 ctgcggctcg acacgcagga agagatcggc ctgttccggt acgatgagcc gctgaagggc 780  
 aagcagatca accgtttccc cgaatacggc agagccctga tcggctcgct gatgcaggta 840  
 caggagaaca tccacctgaa aagtgcgcac tggcagcgaa cgctctacat caacacgctg 900  
 gatgtgggca ccaccgattt cgacattacc gacgagaaga aaaaagtgtc ggtgaatgag 960  
 gggatcaagg gagcggagac ctatttccgc tggtttgagg atcccgaaga aaaaccggtg 1020  
 aataaggtga atcttgtctg a 1041

<210> 56  
 <211> 346  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 56  
 Met Ala Ser Gln Phe Arg Asn Leu Val Phe Glu Gly Gly Gly Val Lys  
 1 5 10 15  
 Gly Ile Ala Tyr Ile Gly Ala Met Gln Val Leu Glu Gln Arg Gly Leu  
 20 25 30  
 Leu Lys Asp Ile Val Arg Val Gly Gly Thr Ser Ala Gly Ala Ile Asn  
 35 40 45  
 Ala Leu Ile Phe Ser Leu Gly Phe Thr Ile Lys Glu Gln Gln Asp Ile  
 50 55 60  
 Leu Asn Ser Thr Asn Phe Arg Glu Phe Met Asp Ser Ser Phe Gly Phe  
 65 70 75 80  
 Ile Arg Asn Phe Arg Arg Leu Trp Ser Glu Phe Gly Trp Asn Arg Gly  
 85 90 95  
 Asp Val Phe Ser Asp Trp Ala Gly Glu Leu Val Lys Glu Lys Leu Gly





accacgcct caggtaccga tatcccttca tag

1413

<210> 58  
 <211> 470  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 58  
 Met Gln Leu Val Phe Val His Gly Trp Ser Val Thr His Thr Asn Thr  
 1 5 10 15  
 Tyr Gly Glu Leu Pro Glu Ser Leu Ala Ala Gly Ala Ala Thr His Gly  
 20 25 30  
 Leu Gln Ile Asp Ile Arg His Val Phe Leu Gly Lys Tyr Ile Ser Phe  
 35 40 45  
 His Asp Glu Val Thr Leu Asp Ile Ala Arg Ala Phe Asp Lys Ala  
 50 55 60  
 Leu Arg Asp Met Ser Gly Asp Gly Asp Thr Val Ser Pro Phe Ser Cys  
 65 70 75 80  
 Ile Thr His Ser Thr Gly Gly Pro Val Val Arg His Trp Ile Asn Lys  
 85 90 95  
 Phe Tyr Gly Ala Arg Gly Leu Ser Lys Leu Pro Leu Glu His Leu Val  
 100 105 110  
 Met Leu Ala Pro Ala Asn His Gly Ser Ser Leu Ala Val Leu Gly Lys  
 115 120 125  
 Gln Arg Leu Gly Arg Ile Lys Ser Trp Phe Asp Gly Val Glu Pro Gly  
 130 135 140  
 Gln Lys Val Leu Asp Trp Leu Ser Leu Gly Ser Asn Gly Gln Trp Ala  
 145 150 155 160  
 Leu Asn Arg Asp Phe Leu Ser Tyr Arg Pro Ala Lys His Gly Phe Phe  
 165 170 175  
 Pro Phe Val Leu Thr Gly Gln Gly Ile Asp Thr Lys Phe Tyr Asp Phe  
 180 185 190  
 Leu Asn Ser Tyr Leu Val Glu Pro Gly Ser Asp Gly Val Val Arg Val  
 195 200 205  
 Ala Gly Ala Asn Met His Phe Arg Tyr Leu Ser Leu Val Gln Ser Glu  
 210 215 220  
 Thr Val Leu His Thr Pro Gly Lys Val Leu Gln Leu Glu Tyr Asn Glu  
 225 230 235 240  
 Arg Arg Pro Val Lys Ser Pro Gln Ala Val Pro Met Gly Val Phe Ser  
 245 250 255  
 Gln Phe Ser His Ser Gly Asp Lys Met Gly Ile Met Ala Val Lys Arg  
 260 265 270  
 Lys Lys Asp Ala His Gln Met Ile Val Thr Glu Val Leu Lys Cys Leu  
 275 280 285  
 Cys Val Ser Asp Ser Asp Glu Tyr Gln Gln Arg Gly Leu Glu Leu Ala  
 290 295 300  
 Glu Leu Thr Ala Ser Glu Gln Arg Lys Pro Ile Glu Asp Gln Asp Lys  
 305 310 315 320  
 Ile Ile Ser Arg Tyr Ser Met Leu Val Phe Arg Val Arg Asp Gln Ala  
 325 330 335  
 Gly Asn Thr Ile Gly Val His Asp Phe Asp Ile Leu Leu Leu Ala Gly  
 340 345 350  
 Asp Thr Tyr Ser Pro Asp Lys Leu Pro Glu Gly Phe Phe Met Asp Lys  
 355 360 365  
 Gln Ala Asn Arg Asp Ala Gly Ser Leu Ile Tyr Tyr Val Asp Ala Asp  
 370 375 380  
 Lys Met Ser Glu Met Lys Asp Gly Cys Tyr Gly Leu Arg Val Val Val  
 385 390 395 400  
 Arg Pro Glu Lys Gly Phe Ser Tyr Tyr Thr Thr Gly Glu Phe Arg Ser  
 405 410 415  
 Glu Gly Ile Pro Val Asp Arg Val Phe Ala Ala Asn Glu Thr Thr Tyr

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          420          425          430
Ile Asp Ile Thr Met Asn Arg Ser Val Asp Gln Asn Val Phe Arg Phe
          435          440          445
Ser Pro Ala Thr Glu Pro Pro Glu Ser Phe Lys Arg Thr Thr Pro Ser
          450          455          460
Gly Thr Asp Ile Pro Ser
465          470

```

<210> 59  
 <211> 1038  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

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<400> 59
atgacaacac aatttagaaa cttgatcttt gaaggcggcg gtgtaaaagg cgttgcttac      60
attggcgcca tgcagattct tgaaaatcgt ggcgtgttgc aagatattcg ccgagtcgga      120
gggtgcagtg cgggtgcgat taacgcgctg atttttgcgc tgggttacac ggtccgtgag      180
caaaaagaga tcttacaagc caccgatttt aaccagttta tggataactc ttgggggggtt      240
attcgtgata ttgcaggtct tgctcgagac tttggctgga ataagggtga tttcttttagt      300
agctggatag gtgatttgat tcatcgctcg ttggggaatc gccgagcgac gttcaaagat      360
ctgcaaaagg ccaagcttcc tgatctttat gtcacggtta ctaatctgtc tacagggttt      420
gcagaggtgt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc      480
tccatgtcga taccgctgtt ctttgcgcca gtgcgtcatg gtgatcgaca agatgtgtat      540
gtcgtggggg gtgttcaact taactatccg attaaactgt ttgatcgga gcgttatatt      600
gatctggcca aagatcccgg tgccgttcgg cgaacggggt attacaacaa agaaaacgct      660
cgctttcagc ttgatcggcc gggccatagc ccctatgttt acaatcgcca gacctgggt      720
ttgcgactgg atagtcgcga ggagataggg ctctttcgtt atgacgaacc cctcaagggc      780
aaaccatta agtccttcac tgactacgct cgacaacttt tcggtgcgct gatgaatgca      840
caggaaaaga ttcattctaca tggcgatgat tggcaacgca cgggtctatat cgatacactc      900
gatgtgggta cgacggactt caatctttct gatgcaacca agcaagcact gattgagcaa      960
ggaattaacg gcaccgaaaa ttatttcgac tggtttgata atccgtaga gaagcctgtg     1020
aatagagtgg agtcatag                                     1038

```

<210> 60  
 <211> 345  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

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<400> 60
Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
  1          5          10          15
Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
          20          25          30
Leu Gln Asp Ile Arg Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn
          35          40          45
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
          50          55          60
Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
          65          70          75          80
Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp Asn Lys Gly
          85          90          95
Asp Phe Phe Ser Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
          100          105          110
Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
          115          120          125
Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe
          130          135          140
Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile

```

145					150					155				160	
Ser	Met	Ser	Ile	Pro	Leu	Phe	Phe	Ala	Ala	Val	Arg	His	Gly	Asp	Arg
				165					170					175	
Gln	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Ile	Lys
			180					185					190		
Leu	Phe	Asp	Arg	Glu	Arg	Tyr	Ile	Asp	Leu	Ala	Lys	Asp	Pro	Gly	Ala
		195					200					205			
Val	Arg	Arg	Thr	Gly	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Gln	Leu
	210					215					220				
Asp	Arg	Pro	Gly	His	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu	Gly
225					230					235				240	
Leu	Arg	Leu	Asp	Ser	Arg	Glu	Glu	Ile	Gly	Leu	Phe	Arg	Tyr	Asp	Glu
			245						250					255	
Pro	Leu	Lys	Gly	Lys	Pro	Ile	Lys	Ser	Phe	Thr	Asp	Tyr	Ala	Arg	Gln
		260						265					270		
Leu	Phe	Gly	Ala	Leu	Met	Asn	Ala	Gln	Glu	Lys	Ile	His	Leu	His	Gly
	275					280					285				
Asp	Asp	Trp	Gln	Arg	Thr	Val	Tyr	Ile	Asp	Thr	Leu	Asp	Val	Gly	Thr
	290					295					300				
Thr	Asp	Phe	Asn	Leu	Ser	Asp	Ala	Thr	Lys	Gln	Ala	Leu	Ile	Glu	Gln
305					310					315				320	
Gly	Ile	Asn	Gly	Thr	Glu	Asn	Tyr	Phe	Asp	Trp	Phe	Asp	Asn	Pro	Leu
			325					330						335	
Glu	Lys	Pro	Val	Asn	Arg	Val	Glu	Ser							
		340						345							

<210> 61  
 <211> 1257  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 61	
atgacattaa aactctccct gctgatcgcg agcctgagcg ccgtgtctcc agcagtcttg	60
gcaaacgacg tcaatccagc gccactcatg gcgccgtccg aagcggattc cgcgagacg	120
ctgggcagtc tgacgtacac ctatgttcgc tgctggtatc gtccggctgc gacgcataat	180
gatccttaca ccacctggga gtgggcgaag aacgcggacg gcagtgattt caccattgat	240
ggctattggg ggtcatcggt gagttacaaa aacatgttct ataccgatac tcagcccgat	300
accatcatgc agcgctgtgc agagacgttg gggttaaccc acgataccgc tgacatcacc	360
tatgccgcgg ccgataaccg tttctcctac aaccacacca tctggagcaa cgatgtcgcc	420
aacgcgcgca gcaaaatcaa taaggtgatc gcctttgggtg acagcctgtc agacacgggc	480
aacattttta acgcctcgca atggcgcttc ccgaaccgca actcctgggt tgtcggccac	540
ttctcaaacg ggtttgtctg gaccgagtat ctggcgcaag gtttggggct gccctctac	600
aactgggcgg tgggcggcgc ggcggggcgc aatcaatact gggcgctgac tggcgtgaat	660
gaacaggtca gttcgtacct gacctacatg gagatggcgc cgaattaccg tgcggagaac	720
acgctgttta cactcgaatt cggctctgaat gattttatga actacgaccg ttcactggca	780
gacgtcaaag cagattacag ctcggcgctg attcgtctgg tgggaagccgg agcgaaaaat	840
atggtgctgt tgaccctacc ggatgccacg cgcgcgcgcg agttccaata ttcaacgcaa	900
gaacacatcg acgaggtgcg cgccaaagtg attggcatga acgcgttcat tcgtgagcag	960
gcacgctact tccagatgca gggcatcaac atttcgctgt ttgacgccta cacgctgttt	1020
gatcagatga tcgcccagcc agccgcgcac ggctttgata atgccagcgc gccatgtctt	1080
gatattcagc gcagctctgc ggcgactat ctctacacgc atgctctggc agccgagtgt	1140
gcctcatccg gttcagaccg ctttgtgttc tgggatgtga ctcacccaac cacggcaacg	1200
catcgctaca tcgccgacca cattctggct accggtgttg cgcagttccc gcgttaa	1257

<210> 62  
 <211> 418  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(21)

<400> 62

Met	Thr	Leu	Lys	Leu	Ser	Leu	Leu	Ile	Ala	Ser	Leu	Ser	Ala	Val	Ser
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Pro	Ala	Val	Leu	Ala	Asn	Asp	Val	Asn	Pro	Ala	Pro	Leu	Met	Ala	Pro
			20					25					30		
Ser	Glu	Ala	Asp	Ser	Ala	Gln	Thr	Leu	Gly	Ser	Leu	Thr	Tyr	Thr	Tyr
		35					40					45			
Val	Arg	Cys	Trp	Tyr	Arg	Pro	Ala	Ala	Thr	His	Asn	Asp	Pro	Tyr	Thr
	50				55						60				
Thr	Trp	Glu	Trp	Ala	Lys	Asn	Ala	Asp	Gly	Ser	Asp	Phe	Thr	Ile	Asp
65					70				75					80	
Gly	Tyr	Trp	Trp	Ser	Ser	Val	Ser	Tyr	Lys	Asn	Met	Phe	Tyr	Thr	Asp
				85					90					95	
Thr	Gln	Pro	Asp	Thr	Ile	Met	Gln	Arg	Cys	Ala	Glu	Thr	Leu	Gly	Leu
			100					105					110		
Thr	His	Asp	Thr	Ala	Asp	Ile	Thr	Tyr	Ala	Ala	Ala	Asp	Thr	Arg	Phe
		115					120					125			
Ser	Tyr	Asn	His	Thr	Ile	Trp	Ser	Asn	Asp	Val	Ala	Asn	Ala	Pro	Ser
		130				135					140				
Lys	Ile	Asn	Lys	Val	Ile	Ala	Phe	Gly	Asp	Ser	Leu	Ser	Asp	Thr	Gly
145					150				155					160	
Asn	Ile	Phe	Asn	Ala	Ser	Gln	Trp	Arg	Phe	Pro	Asn	Pro	Asn	Ser	Trp
				165					170					175	
Phe	Val	Gly	His	Phe	Ser	Asn	Gly	Phe	Val	Trp	Thr	Glu	Tyr	Leu	Ala
			180					185					190		
Gln	Gly	Leu	Gly	Leu	Pro	Leu	Tyr	Asn	Trp	Ala	Val	Gly	Gly	Ala	Ala
		195					200					205			
Gly	Arg	Asn	Gln	Tyr	Trp	Ala	Leu	Thr	Gly	Val	Asn	Glu	Gln	Val	Ser
	210					215					220				
Ser	Tyr	Leu	Thr	Tyr	Met	Glu	Met	Ala	Pro	Asn	Tyr	Arg	Ala	Glu	Asn
225					230					235				240	
Thr	Leu	Phe	Thr	Leu	Glu	Phe	Gly	Leu	Asn	Asp	Phe	Met	Asn	Tyr	Asp
				245					250					255	
Arg	Ser	Leu	Ala	Asp	Val	Lys	Ala	Asp	Tyr	Ser	Ser	Ala	Leu	Ile	Arg
			260					265					270		
Leu	Val	Glu	Ala	Gly	Ala	Lys	Asn	Met	Val	Leu	Leu	Thr	Leu	Pro	Asp
		275					280					285			
Ala	Thr	Arg	Ala	Pro	Gln	Phe	Gln	Tyr	Ser	Thr	Gln	Glu	His	Ile	Asp
	290					295					300				
Glu	Val	Arg	Ala	Lys	Val	Ile	Gly	Met	Asn	Ala	Phe	Ile	Arg	Glu	Gln
305					310					315				320	
Ala	Arg	Tyr	Phe	Gln	Met	Gln	Gly	Ile	Asn	Ile	Ser	Leu	Phe	Asp	Ala
				325					330					335	
Tyr	Thr	Leu	Phe	Asp	Gln	Met	Ile	Ala	Asp	Pro	Ala	Ala	His	Gly	Phe
			340					345					350		
Asp	Asn	Ala	Ser	Ala	Pro	Cys	Leu	Asp	Ile	Gln	Arg	Ser	Ser	Ala	Ala
		355					360					365			
Asp	Tyr	Leu	Tyr	Thr	His	Ala	Leu	Ala	Ala	Glu	Cys	Ala	Ser	Ser	Gly
	370					375					380				
Ser	Asp	Arg	Phe	Val	Phe	Trp	Asp	Val	Thr	His	Pro	Thr	Thr	Ala	Thr
385					390					395				400	
His	Arg	Tyr	Ile	Ala	Asp	His	Ile	Leu	Ala	Thr	Gly	Val	Ala	Gln	Phe
				405					410					415	

Pro Arg

<210> 63  
 <211> 1242  
 <212> DNA  
 <213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 63

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atgaaaaata cgtaaatttt ggctggctgt atattggcag ctccagccgt cgcagatgac      60
ctaacaatca cccctgaaac tataagtgtg cgctacgcgt ctgaggtgca gaacaaacaa      120
acatacactt atgttcgctg ctggtatcgt ccagcgcaga accatgacga cccttccact      180
gagtgggaat gggctcgtga cgacaatggc gattacttca ctatcgatgg gtactggtgg      240
tcgtctgtct ccttcaaaaa catgttctat accaatatccc cgcaaacaga aattgaaaac      300
cgctgtaaag aaacactagg gggttaatcat gatagtgcg atcttcttta ctatgcatca      360
gacaatcggt tctcctacaa ccatagtatt tggacaaacg acaacgcagt aaacaacaaa      420
atcaatcgta ttgtcgcatt cggatagatg ctgtctgaca ccggtaatct gtacaatgga      480
tcccaatggg tattcccca ccgtaattct tggtttctcg gtcacttttc aaacggtttg      540
gtgtggactg aataacttagc gcaaaacaaa aacgtaccac tgtacaactg ggcgggtcgg      600
ggcgccgccc gcaccaacca atacgtcgca ttgacaggca tttatgacca agtgacgtct      660
tatcttacgt acatgaagat ggcaaagaac tacaacccaa acaacagttt gatgacgtg      720
gaatttggcc taaatgattt catgaattac ggccgagaag tggcgagcgt gaaagctgac      780
ttaagtagcg cattgattcg cttgaccgaa tcaggcgcaa gcaacattct actcttcacg      840
ttaccggacg caacaaaggc accgcagttt aaatattcga ctcaggagga aattgagacc      900
gttcgagcta agattcttga gttcaacact tttattgaag aacaagcgtt actctatcaa      960
gctaaaggac tgaatgtggc cctctacgat gctcatagca tctttgatca gctgacatcc     1020
aatcctaaac aacacggttt tgagaactca acagatgcct gtctgaacat caaccgcagt     1080
tcctctgtcg actaccttta cagtcattgag ctaactaacg attgtgcgta tcatagctct     1140
gataaatatg tgttctgggg agtcactcac ccaaccacag caacacataa atacattgcc     1200
gaccaaatac ttcagacca gctagaccag ttcaatttct aa                        1242
```

<210> 64

<211> 413

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(18)

<400> 64

```
Met Lys Asn Thr Leu Ile Leu Ala Gly Cys Ile Leu Ala Ala Pro Ala
 1          5          10          15
Val Ala Asp Asp Leu Thr Ile Thr Pro Glu Thr Ile Ser Val Arg Tyr
 20          25          30
Ala Ser Glu Val Gln Asn Lys Gln Thr Tyr Thr Tyr Val Arg Cys Trp
 35          40          45
Tyr Arg Pro Ala Gln Asn His Asp Asp Pro Ser Thr Glu Trp Glu Trp
 50          55          60
Ala Arg Asp Asp Asn Gly Asp Tyr Phe Thr Ile Asp Gly Tyr Trp Trp
 65          70          75          80
Ser Ser Val Ser Phe Lys Asn Met Phe Tyr Thr Asn Thr Pro Gln Thr
 85          90          95
Glu Ile Glu Asn Arg Cys Lys Glu Thr Leu Gly Val Asn His Asp Ser
100          105          110
Ala Asp Leu Leu Tyr Tyr Ala Ser Asp Asn Arg Phe Ser Tyr Asn His
115          120          125
Ser Ile Trp Thr Asn Asp Asn Ala Val Asn Asn Lys Ile Asn Arg Ile
130          135          140
Val Ala Phe Gly Asp Ser Leu Ser Asp Thr Gly Asn Leu Tyr Asn Gly
145          150          155          160
Ser Gln Trp Val Phe Pro Asn Arg Asn Ser Trp Phe Leu Gly His Phe
165          170          175
Ser Asn Gly Leu Val Trp Thr Glu Tyr Leu Ala Gln Asn Lys Asn Val
180          185          190
Pro Leu Tyr Asn Trp Ala Val Gly Gly Ala Ala Gly Thr Asn Gln Tyr
```



<223> Obtained from an environmental sample.

<400> 66

```
Met Asn Pro Phe Leu Glu Asp Lys Ile Lys Ser Ser Gly Pro Lys Lys
 1          5          10          15
Ile Leu Ala Cys Asp Gly Gly Gly Ile Leu Gly Leu Met Ser Val Glu
 20          25          30
Ile Leu Ala Lys Ile Glu Ala Asp Tyr Phe Arg Thr Lys Leu Gly Lys Asp
 35          40          45
Gln Asn Phe Val Leu Ala Asp Tyr Phe Asp Phe Val Cys Gly Thr Ser
 50          55          60
Thr Gly Ala Ile Ile Ala Ala Cys Ile Ser Ser Gly Met Ser Met Ala
 65          70          75          80
Lys Ile Arg Gln Phe Tyr Leu Asp Ser Gly Lys Gln Met Phe Asp Lys
 85          90          95
Ala Ser Leu Leu Lys Arg Leu Gln Tyr Ser Tyr Asp Asp Glu Pro Leu
100          105          110
Ala Arg Gln Leu Arg Ala Ala Phe Asp Glu Gln Leu Lys Glu Thr Asp
115          120          125
Ala Lys Leu Gly Ser Ala His Leu Lys Thr Leu Leu Met Met Val Met
130          135          140
Arg Asn His Ser Thr Asp Ser Pro Trp Pro Val Ser Asn Asn Pro Tyr
145          150          155          160
Ala Lys Tyr Asn Asn Ile Ala Arg Lys Asp Cys Asn Leu Asn Leu Pro
165          170          175
Leu Trp Gln Leu Val Arg Ala Ser Thr Ala Ala Pro Thr Tyr Phe Pro
180          185          190
Pro Glu Val Ile Thr Phe Ala Asp Gly Thr Pro Glu Glu Tyr Asn Phe
195          200          205          210
Ile Phe Val Asp Gly Gly Val Thr Thr Tyr Asn Asn Pro Ala Tyr Leu
210          215          220
Ala Phe Leu Met Ala Thr Ala Lys Pro Tyr Ala Leu Asn Trp Pro Thr
225          230          235          240
Gly Ser Asn Gln Leu Ile Val Ser Val Gly Thr Gly Ser Ala Ala
245          250          255
Asn Val Arg Pro Asn Leu Asp Val Asp Asp Met Asn Leu Ile His Phe
260          265          270
Ala Lys Asn Ile Pro Ser Ala Leu Met Asn Ala Ala Ser Ala Gly Trp
275          280          285
Asp Met Thr Cys Arg Val Leu Gly Glu Cys Arg His Gly Gly Met Leu
290          295          300
Asp Arg Glu Phe Gly Asp Met Val Met Pro Ala Ser Arg Asp Leu Asn
305          310          315          320
Phe Thr Gly Pro Lys Leu Phe Thr Tyr Met Arg Tyr Asp Pro Asp Val
325          330          335
Ser Phe Glu Gly Leu Lys Thr Ile Gly Ile Ser Asp Ile Asp Pro Ala
340          345          350
Lys Met Gln Gln Met Asp Ser Val Asn Asn Ile Pro Asp Ile Gln Arg
355          360          365
Val Gly Ile Glu Tyr Ala Lys Arg His Val Asp Thr Ala His Phe Glu
370          375          380
Gly Phe Lys
385
```

<210> 67

<211> 1419

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 67

atggtcattg tcttcgtcca cggatggagc gtgcgcaaca ccaacacgta cgggcagctg

60



```

cccttgcgtc tcaagaagag cttcaaagcc gccgggaaac agattcaggt cgagaacatc 120
tacctgggcg agtacgtgag ctttgacgac caggtaacag tcgacgacat cgcccgcgca 180
ttcgattgcg cactgcgggg aaaactatac gatccggcga cgaagcagtg gacgaagtgc 240
gcctgcatca ctcatccac cggcggcccg gtcgcgcgct tgtggatgga tctctactac 300
ggcgccgcca gactggccga gtgcccgatg tcccacctcg tgatgctcgc cccggccaat 360
catggctcgg cccttgccca gctcggcaag agccgcctca gccgcatcaa gagcttcttc 420
gaggggtgctg aaccggggcca gcgcgtcctc gactggctcg aactcggcag tgagctgagt 480
tgggccctca acacgagatg gctcgactac gactgccgcg ccgccgctg ctgggtcttc 540
accctcaccg gccagcgcat cgaccggagt ttgtacgacc atctcaacag ctataccggt 600
gagcagggat cggtggcgt cgtgcgcgtc gccgcggcca acatgaacac caagctgctg 660
acctttgaac agaaggggcg caagctcgtg ttcacaggcc agaagaagac cgccgacacc 720
ggccttgggcg tcgtgccggg ccggtcgcac tccggccgcg acatgggcat catcgccagc 780
gtgcgcggca ccggcgacca tcccaccctg gaatgggtga ctcgttgcct ggccgtcacc 840
gacgtcaaca cgtacgatgc cgtctgtaag gatctggacg ctctcaccgc ccagaccagc 900
aaggatgaaa aggtggaaga ggtcaaaggc ctgctgcgga cggtcagata ccagacggac 960
cgctacgtca tgctcgtctt ccgcctgaag aacgaccgcg gcgactacct ctccgattac 1020
gatctcctgc tcaccgcccg acccaactac tcgccgcagc acctgcccga aggcttcttc 1080
gtcgaccgcc aacggaacca gcggaaccgc ggcaagctca cttactacct gaactacgac 1140
gccatggcca aattgaaagg taagaccgcc gagggccgtc tgggcttcaa gatcctggcg 1200
cgcccggtga aaggcgccct cgtctactat gaggttgccg agttccagtc cgacgtgggc 1260
ggcgtcagca gcatgctgca gcccaacgca acagtgatga tcgacatcac cctcaatcgc 1320
aacgtcgacg cgcgctctt ccggttcacc gagaatctgc ccacgggtga ccagggcgag 1380
gaaatcagcg gcgtcccgt ggggcagaac gtcccgtag 1419

```

<210> 68  
 <211> 472  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 68

Met	Val	Ile	Val	Phe	Val	His	Gly	Trp	Ser	Val	Arg	Asn	Thr	Asn	Thr
1				5					10					15	
Tyr	Gly	Gln	Leu	Pro	Leu	Arg	Leu	Lys	Lys	Ser	Phe	Lys	Ala	Ala	Gly
			20					25					30		
Lys	Gln	Ile	Gln	Val	Glu	Asn	Ile	Tyr	Leu	Gly	Glu	Tyr	Val	Ser	Phe
		35					40					45			
Asp	Asp	Gln	Val	Thr	Val	Asp	Asp	Ile	Ala	Arg	Ala	Phe	Asp	Cys	Ala
	50					55			60						
Leu	Arg	Glu	Lys	Leu	Tyr	Asp	Pro	Ala	Thr	Lys	Gln	Trp	Thr	Lys	Phe
65					70				75					80	
Ala	Cys	Ile	Thr	His	Ser	Thr	Gly	Gly	Pro	Val	Ala	Arg	Leu	Trp	Met
				85				90						95	
Asp	Leu	Tyr	Tyr	Gly	Ala	Ala	Arg	Leu	Ala	Glu	Cys	Pro	Met	Ser	His
		100						105					110		
Leu	Val	Met	Leu	Ala	Pro	Ala	Asn	His	Gly	Ser	Ala	Leu	Ala	Gln	Leu
		115					120						125		
Gly	Lys	Ser	Arg	Leu	Ser	Arg	Ile	Lys	Ser	Phe	Phe	Glu	Gly	Val	Glu
	130					135					140				
Pro	Gly	Gln	Arg	Val	Leu	Asp	Trp	Leu	Glu	Leu	Gly	Ser	Glu	Leu	Ser
145					150				155					160	
Trp	Ala	Leu	Asn	Thr	Arg	Trp	Leu	Asp	Tyr	Asp	Cys	Arg	Ala	Ala	Ala
			165					170						175	
Cys	Trp	Val	Phe	Thr	Leu	Thr	Gly	Gln	Arg	Ile	Asp	Arg	Ser	Leu	Tyr
		180					185					190			
Asp	His	Leu	Asn	Ser	Tyr	Thr	Gly	Glu	Gln	Gly	Ser	Asp	Gly	Val	Val
	195						200					205			
Arg	Val	Ala	Ala	Ala	Asn	Met	Asn	Thr	Lys	Leu	Leu	Thr	Phe	Glu	Gln
	210					215						220			
Lys	Gly	Arg	Lys	Leu	Val	Phe	Thr	Gly	Gln	Lys	Lys	Thr	Ala	Asp	Thr
225				230						235				240	
Gly	Leu	Gly	Val	Val	Pro	Gly	Arg	Ser	His	Ser	Gly	Arg	Asp	Met	Gly



<223> Obtained from an environmental sample.

<400> 70

```
Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys
 1          5          10          15
Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val
 20          25          30
Leu Gln Asp Ile Arg Arg Val Gly Cys Ser Ala Gly Ala Ile Asn
 35          40          45
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile
 50          55          60
Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val
 65          70          75          80
Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp His Lys Gly
 85          90          95
Asp Phe Phe Asn Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly
100          105          110
Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp
115          120          125
Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Tyr Ala Glu Val Phe
130          135          140
Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile
145          150          155          160
Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg
165          170          175
Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys
180          185          190
Leu Phe Asp Arg Glu Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala
195          200          205
Val Arg Arg Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu
210          215          220
Glu Arg Pro Gly Tyr Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly
225          230          235          240
Leu Arg Leu Asp Ser Arg Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu
245          250          255
Pro Leu Lys Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln
260          265          270
Leu Phe Gly Ala Leu Met Asn Ala Gln Glu Lys Ile His Leu His Gly
275          280          285
Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Thr Leu Asp Val Gly Thr
290          295          300
Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln
305          310          315          320
Gly Ile Asn Gly Thr Glu Asn Tyr Phe Glu Trp Phe Asp Asn Pro Leu
325          330          335
Glu Lys Pro Val Asn Arg Val Glu Ser
340          345
```

<210> 71

<211> 3264

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 71

```
atgtcgctat catcaccgcc cgaaaccccc gaaccccccg aacccccgtc acccggcgcg      60
cgatcgctcc ggggaggatg gagccgccgg gtggccggcc tgctggccct ggtgctgctc      120
accgggctcc tccagatcgt cgtgccgctc gcacggcccc cgcgggcggc cgtacagcag      180
cccgcgatga cgtggaacct gcatggggcc aagaagaccg cggaactggt tcccgatctg      240
atgcgtaacc ataacgtcac cgtcgcggcc ctccaggaag tggccaacgg caacttcctg      300
ggcctcactc ccacagagca cgacgtgccc tacctcaagc cggacggcac gacctcgact      360
ccgccggatc cgcagaaatg gcgggtcgag aagtacaacc tcgccaagga cgatgcaacc      420
```

gctttcgtga	tccggaccgg	ctccaacaac	cgcgggctcg	cgatcgtcac	caccagggac	480
gtcggcgatg	tctcgcagaa	tgtacacgtc	gtcaatgtga	ccgaggattg	ggaaggcaag	540
atgttccccg	ccctgggggt	gaagatcgac	ggcgcttggt	actactccat	ccacgcctcc	600
accacgccga	agcgcgcgaa	caacaacgcc	ggcactctgg	tcgaggacct	ctccaagctg	660
cacgagacgg	ccgctttcga	aggcgactgg	gccgcgatgg	gcgactggaa	ccggtacccc	720
tccgaggact	cgaacgccta	cgagaaccaa	cggaagcatc	tcaaaggcgc	catgcggaca	780
aactttccgg	ataatcaggc	ggcgttgccg	gaagtcttgg	agttcgagtc	cgacgaacgc	840
gtcatctggc	aggggtgcgag	gacccacgac	cacggcgccg	agctcgacta	catggtggcc	900
aagggaagccg	gtaacgacta	caaggccagc	cgatcgacgt	cgaagcacgg	ctccgatcac	960
tacccggtgt	tcttcggtat	tggggacgat	tcggacacct	gcatgggcgg	cacggcgccg	1020
gtggcggcga	acgcgcgcgg	tgcggccgcc	accgagtcct	gtcccctgga	cgacgatctg	1080
ccggccgtca	tctgtctgat	gggggacagc	tatatctccg	gcgagggagg	gcgctggcag	1140
ggcaacgcc	acacctcttc	cgggggcgac	tcctggggca	ccgaccgggc	cgccgacggc	1200
acggaggtct	acgagaagaa	ctccgaaggc	agcgatgcct	gtcaccgctc	cgacgtcgcg	1260
gagatcaagc	gcgcgcacat	cgccgcacatc	ccggcggaac	gcaggatcaa	catcgccctgc	1320
tcgggcgccg	agaccaagca	cctgctcacc	gagaccttca	agggtgaaaa	gccccagatc	1380
gagcagctcg	ccgacgtcgc	cgaaacccac	cgggtggaca	cgatcgtggt	ctccatcggc	1440
ggcaacgacc	tcgagttcgc	cgacatcggt	agccagtgcg	ccacggcctt	catgctcggg	1500
gaaggcgctg	gtcacacgga	cgtcgacgat	acccttgata	gccggttggt	cgatgtgagc	1560
agatccgtct	ccgaggttct	ggccgccatc	cgcgacacca	tgatcgaggc	cgggcaggac	1620
gataccagct	acaagctcgt	tctccagtcc	taccctgccc	cgttgcccgc	gtcggatgag	1680
atgcggtaca	cgggcgatca	ctacgaccgg	tacaccgagg	gcggctgccc	cttctatgac	1740
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gtggccaaga	gtgcggatgc	ggccttcttc	aacctgacgg	acacgttcac	ggggcacgag	1860
ctgtgtctga	agcacacccg	acaggcgagg	tccggcgaat	cgctggcgaa	tccaatactg	1920
gaacacgagg	ccgagtgggt	gcgcttcgta	ccaggtctca	ccacgcgggg	tgacacggcc	1980
gaagccatcc	atccgaatgc	gttcggccag	cacgccctca	gtagctgcct	cagccaggcc	2040
gtccggacga	tggacgattc	ggaccagagg	tacttcgagt	gcgacggggc	ggacaccgga	2100
aatccccgcc	tctgttggcc	acgcagttcg	cccatcgacg	ccgtcgtgga	gaccgcggac	2160
ggttggcagg	gcgacgactt	ccggctcgcc	gaccactaca	tgttccagcg	cggcgtctac	2220
gcccgccttc	acccggacgc	ggaccggagc	ggcgcgatcg	atccggggccg	aatcaccttc	2280
ggccaaaccg	acggatgggt	cgggtgagtg	aaggacactt	cgaactggcc	gagcctgagt	2340
ggaaccgact	tctgtcgacg	catcgacgcc	gccgccgagg	cacgcaccag	caccggtcac	2400
cagctgtctg	tgttccacag	cggcgttgag	gacaaccagt	acgtgcgggt	cgagatggcg	2460
ccggggacca	ctgacgacca	gctcgtcagg	ggccccgtgc	ccatcacgag	gtactggccc	2520
ctcttcagg	acaccccttt	cgaatggggc	gtggatgccg	ccgcggggga	ccagctgaac	2580
cgggcgatgg	tcttcaggca	cggctatgtg	gggctgggtg	aggtctccct	cgacgtcttc	2640
agcgacgaat	ggctcgtgga	accgacgttg	atcggctcgg	cgattccggc	gctggagggc	2700
accccgttcg	agacaggggt	ggacgcggcg	atcgtgcggc	accagcaacc	gacggccatg	2760
tgggtcgacc	tgatcagcgg	tacgcaggtg	gtgacgctgc	tggtggactt	ggacgatctg	2820
tcgaagagca	cgtacatgac	gagcatcgtg	gagatcacga	cgatgtggcc	gagcctgcgc	2880
ggcagcatct	tcgactggac	cggcggagag	gcgtggaagc	cggagaagat	gcagatcaag	2940
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tcgggctcgc	acgagcagtg	ccgtccggag	ggactagcgc	agacccccgg	cgtgaacacg	3060
ccgtactcgc	aggtgtacga	caccgacggc	cgcgaatggc	tgggcgggaa	cgggcacgac	3120
aggcgggtca	tcggctactt	caccggcttg	cgcaccgggtg	agaacgacca	gccgcgctac	3180
ctggtgccga	acatcccgtg	gtcgaagggtg	acccacatca	actacgcgtt	cgcgaaagtc	3240
gacgacgaca	acaagatcca	aaga				3264

<210> 72  
 <211> 1088  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 72  
 Met Ser Leu Ser Ser Pro Pro Glu Thr Pro Glu Pro Pro Glu Pro Pro  
 1 5 10 15  
 Ser Pro Gly Ala Arg Ser Leu Arg Gly Gly Trp Ser Arg Arg Val Ala  
 20 25 30  
 Gly Leu Leu Ala Leu Val Leu Leu Thr Gly Leu Leu Gln Ile Val Val  
 35 40 45

Pro	Leu	Ala	Arg	Pro	Ala	Ala	Ala	Ala	Val	Gln	Gln	Pro	Ala	Met	Thr
50					55					60					
Trp	Asn	Leu	His	Gly	Ala	Lys	Lys	Thr	Ala	Glu	Leu	Val	Pro	Asp	Leu
65					70					75					80
Met	Arg	Asn	His	Asn	Val	Thr	Val	Ala	Ala	Leu	Gln	Glu	Val	Ala	Asn
				85					90					95	
Gly	Asn	Phe	Leu	Gly	Leu	Thr	Pro	Thr	Glu	His	Asp	Val	Pro	Tyr	Leu
			100					105					110		
Lys	Pro	Asp	Gly	Thr	Thr	Ser	Thr	Pro	Pro	Asp	Pro	Gln	Lys	Trp	Arg
		115					120					125			
Val	Glu	Lys	Tyr	Asn	Leu	Ala	Lys	Asp	Asp	Ala	Thr	Ala	Phe	Val	Ile
	130					135					140				
Arg	Thr	Gly	Ser	Asn	Asn	Arg	Gly	Leu	Ala	Ile	Val	Thr	Thr	Gln	Asp
145					150					155					160
Val	Gly	Asp	Val	Ser	Gln	Asn	Val	His	Val	Val	Asn	Val	Thr	Glu	Asp
				165					170					175	
Trp	Glu	Gly	Lys	Met	Phe	Pro	Ala	Leu	Gly	Val	Lys	Ile	Asp	Gly	Ala
			180					185					190		
Trp	Tyr	Tyr	Ser	Ile	His	Ala	Ser	Thr	Thr	Pro	Lys	Arg	Ala	Asn	Asn
		195					200					205			
Asn	Ala	Gly	Thr	Leu	Val	Glu	Asp	Leu	Ser	Lys	Leu	His	Glu	Thr	Ala
	210					215					220				
Ala	Phe	Glu	Gly	Asp	Trp	Ala	Ala	Met	Gly	Asp	Trp	Asn	Arg	Tyr	Pro
225					230					235					240
Ser	Glu	Asp	Ser	Asn	Ala	Tyr	Glu	Asn	Gln	Arg	Lys	His	Leu	Lys	Gly
				245					250					255	
Ala	Met	Arg	Thr	Asn	Phe	Pro	Asp	Asn	Gln	Ala	Ala	Leu	Arg	Glu	Val
			260					265					270		
Leu	Glu	Phe	Glu	Ser	Asp	Glu	Arg	Val	Ile	Trp	Gln	Gly	Ala	Arg	Thr
		275					280					285			
His	Asp	His	Gly	Ala	Glu	Leu	Asp	Tyr	Met	Val	Ala	Lys	Gly	Ala	Gly
	290					295					300				
Asn	Asp	Tyr	Lys	Ala	Ser	Arg	Ser	Thr	Ser	Lys	His	Gly	Ser	Asp	His
305					310					315					320
Tyr	Pro	Val	Phe	Phe	Gly	Ile	Gly	Asp	Asp	Ser	Asp	Thr	Cys	Met	Gly
				325					330					335	
Gly	Thr	Ala	Pro	Val	Ala	Ala	Asn	Ala	Pro	Arg	Ala	Ala	Ala	Thr	Glu
			340					345					350		
Ser	Cys	Pro	Leu	Asp	Asp	Asp	Leu	Pro	Ala	Val	Ile	Val	Ser	Met	Gly
		355					360					365			
Asp	Ser	Tyr	Ile	Ser	Gly	Glu	Gly	Gly	Arg	Trp	Gln	Gly	Asn	Ala	Asn
	370					375					380				
Thr	Ser	Ser	Gly	Gly	Asp	Ser	Trp	Gly	Thr	Asp	Arg	Ala	Ala	Asp	Gly
385					390					395					400
Thr	Glu	Val	Tyr	Glu	Lys	Asn	Ser	Glu	Gly	Ser	Asp	Ala	Cys	His	Arg
				405					410					415	
Ser	Asp	Val	Ala	Glu	Ile	Lys	Arg	Ala	Asp	Ile	Ala	Asp	Ile	Pro	Ala
			420					425					430		
Glu	Arg	Arg	Ile	Asn	Ile	Ala	Cys	Ser	Gly	Ala	Glu	Thr	Lys	His	Leu
		435					440					445			
Leu	Thr	Glu	Thr	Phe	Lys	Gly	Glu	Lys	Pro	Gln	Ile	Glu	Gln	Leu	Ala
	450					455					460				
Asp	Val	Ala	Glu	Thr	His	Arg	Val	Asp	Thr	Ile	Val	Val	Ser	Ile	Gly
465					470					475					480
Gly	Asn	Asp	Leu	Glu	Phe	Ala	Asp	Ile	Val	Ser	Gln	Cys	Ala	Thr	Ala
				485					490					495	
Phe	Met	Leu	Gly	Glu	Gly	Ala	Cys	His	Thr	Asp	Val	Asp	Asp	Thr	Leu
			500					505					510		
Asp	Ser	Arg	Leu	Gly	Asp	Val	Ser	Arg	Ser	Val	Ser	Glu	Val	Leu	Ala
		515					520					525			
Ala	Ile	Arg	Asp	Thr	Met	Ile	Glu	Ala	Gly	Gln	Asp	Asp	Thr	Ser	Tyr
	530					535					540				
Lys	Leu	Val	Leu	Gln	Ser	Tyr	Pro	Ala	Pro	Leu	Pro	Ala	Ser	Asp	Glu
545					550					555					560

Met	Arg	Tyr	Thr	Gly	Asp	His	Tyr	Asp	Arg	Tyr	Thr	Glu	Gly	Gly	Cys	
				565					570					575		
Pro	Phe	Tyr	Asp	Val	Asp	Leu	Asp	Trp	Thr	Arg	Asp	Val	Leu	Ile	Lys	
			580					585					590			
Lys	Ile	Glu	Ala	Thr	Leu	Arg	Gly	Val	Ala	Lys	Ser	Ala	Asp	Ala	Ala	
		595					600					605				
Phe	Leu	Asn	Leu	Thr	Asp	Thr	Phe	Thr	Gly	His	Glu	Leu	Cys	Ser	Lys	
	610					615					620					
His	Thr	Arg	Gln	Ala	Glu	Ser	Gly	Glu	Ser	Leu	Ala	Asn	Pro	Ile	Leu	
625					630					635					640	
Glu	His	Glu	Ala	Glu	Trp	Val	Arg	Phe	Val	Pro	Gly	Leu	Thr	Thr	Pro	
				645					650					655		
Gly	Asp	Thr	Ala	Glu	Ala	Ile	His	Pro	Asn	Ala	Phe	Gly	Gln	His	Ala	
			660					665					670			
Leu	Ser	Ser	Cys	Leu	Ser	Gln	Ala	Val	Arg	Thr	Met	Asp	Asp	Ser	Asp	
		675					680					685				
Gln	Arg	Tyr	Phe	Glu	Cys	Asp	Gly	Arg	Asp	Thr	Gly	Asn	Pro	Arg	Leu	
	690					695					700					
Val	Trp	Pro	Arg	Ser	Ser	Pro	Ile	Asp	Ala	Val	Val	Glu	Thr	Ala	Asp	
705					710					715					720	
Gly	Trp	Gln	Gly	Asp	Asp	Phe	Arg	Leu	Ala	Asp	His	Tyr	Met	Phe	Gln	
				725					730					735		
Arg	Gly	Val	Tyr	Ala	Arg	Phe	Asn	Pro	Asp	Ala	Asp	Arg	Ser	Gly	Ala	
			740					745					750			
Ile	Asp	Pro	Gly	Arg	Ile	Thr	Phe	Gly	Gln	Thr	Asp	Gly	Trp	Leu	Gly	
		755					760					765				
Glu	Val	Lys	Asp	Thr	Ser	Asn	Trp	Pro	Ser	Leu	Ser	Gly	Thr	Asp	Phe	
	770					775					780					
Val	Asp	Gly	Ile	Asp	Ala	Ala	Ala	Glu	Ala	Arg	Thr	Ser	Thr	Gly	His	
785					790					795					800	
Gln	Leu	Leu	Leu	Phe	His	Ser	Gly	Val	Glu	Asp	Asn	Gln	Tyr	Val	Arg	
				805					810					815		
Val	Glu	Met	Ala	Pro	Gly	Thr	Thr	Asp	Asp	Gln	Leu	Val	Arg	Gly	Pro	
			820					825					830			
Val	Pro	Ile	Thr	Arg	Tyr	Trp	Pro	Leu	Phe	Gln	Asp	Thr	Pro	Phe	Glu	
		835					840					845				
Trp	Gly	Val	Asp	Ala	Ala	Ala	Gly	Asp	Gln	Leu	Asn	Arg	Ala	Met	Val	
	850					855					860					
Phe	Arg	His	Gly	Tyr	Val	Gly	Leu	Val	Gln	Val	Ser	Leu	Asp	Ala	Leu	
865					870					875					880	
Ser	Asp	Glu	Trp	Leu	Val	Glu	Pro	Thr	Leu	Ile	Gly	Ser	Ala	Ile	Pro	
				885					890					895		
Ala	Leu	Glu	Gly	Thr	Pro	Phe	Glu	Thr	Gly	Val	Asp	Ala	Ala	Ile	Val	
			900					905					910			
Arg	His	Gln	Gln	Pro	Thr	Ala	Met	Trp	Val	Asp	Leu	Ile	Ser	Gly	Thr	
		915					920					925				
Gln	Val	Val	Thr	Leu	Leu	Val	Asp	Leu	Asp	Asp	Leu	Ser	Lys	Ser	Thr	
	930					935					940					
Tyr	Met	Thr	Ser	Ile	Val	Glu	Ile	Thr	Thr	Met	Trp	Pro	Ser	Leu	Arg	
945					950					955					960	
Gly	Ser	Ile	Phe	Asp	Trp	Thr	Gly	Gly	Glu	Ala	Trp	Lys	Pro	Glu	Lys	
				965					970					975		
Met	Gln	Ile	Lys	Thr	Gly	Ala	Gly	Asp	Pro	Tyr	Asp	Met	Asp	Ala	Asp	
			980					985					990			
Asp	Arg	Gln	Ala	Lys	Pro	Ala	Val	Ser	Gly	Ser	His	Glu	Gln	Cys	Arg	
			995				1000					1005				
Pro	Glu	Gly	Leu	Ala	Gln	Thr	Pro	Gly	Val	Asn	Thr	Pro	Tyr	Cys	Glu	
	1010					1015					1020					
Val	Tyr	Asp	Thr	Asp	Gly	Arg	Glu	Trp	Leu	Gly	Asn	Gly	His	Asp		
1025					1030					1035				1040		
Arg	Arg	Val	Ile	Gly	Tyr	Phe	Thr	Gly	Trp	Arg	Thr	Gly	Glu	Asn	Asp	
				1045					1050					1055		
Gln	Pro	Arg	Tyr	Leu	Val	Pro	Asn	Ile	Pro	Trp	Ser	Lys	Val	Thr	His	
			1060					1065					1070			

Ile Asn Tyr Ala Phe Ala Lys Val Asp Asp Asp Asn Lys Ile Gln Arg  
1075 1080 1085

<210> 73  
<211> 753  
<212> DNA  
<213> Unknown

<220>  
<223> Obtained from an environmental sample.

<400> 73  
atgggaaacg gtgcagcagt tggttccaat gataatggta gagaagaaag tgtttacgta 60  
ctttctgtga tcgcctgtaa tgtttattat ttacagaagt gtgaagggtg ggcacgcgct 120  
gatagcgtga ttagagaaat taatagccaa actcaacctt taggatatga gattgtagca 180  
gattctattc gtgatgggtca tattgggttct tttgcctgta agatggcagt ctttagaaat 240  
aatggtaatg gcaattgtgt ttttagcgatc aaagggacag atatgaataa tatcaatgac 300  
ttgggtgaatg atctaaccat gatattagga ggcattgggt ctggtgctgc aatccaacca 360  
acgattaaca tggcacaaga actcatcgac caatatggag tgaatttgat tactgggtcac 420  
tcccttggag gctacatgac tgaaatcatc gctaccaatc gtggactacc aggtattgca 480  
ttttgctcac caggttcaaa tgggtccaatt gtaaaattag gtggacaaga gacacctggc 540  
tttcacaatg ttaactttga acatgatcca gcaggtaacg ttatgactgg gggtttatact 600  
catgtccaat ggagtatatta tgtaggatgt gatgggtatga ctcatgggtat tgaaaatatg 660  
gtgaattatt ttaaagataa aagagattta accaatcgca atattcaagg aagaagtga 720  
agtcataata cgggttatta ttacccaaaa taa 753

<210> 74  
<211> 250  
<212> PRT  
<213> Unknown

<220>  
<223> Obtained from an environmental sample.

<400> 74  
Met Gly Asn Gly Ala Ala Val Gly Ser Asn Asp Asn Gly Arg Glu Glu  
1 5 10 15  
Ser Val Tyr Val Leu Ser Val Ile Ala Cys Asn Val Tyr Tyr Leu Gln  
20 25 30  
Lys Cys Glu Gly Gly Ala Ser Arg Asp Ser Val Ile Arg Glu Ile Asn  
35 40 45  
Ser Gln Thr Gln Pro Leu Gly Tyr Glu Ile Val Ala Asp Ser Ile Arg  
50 55 60  
Asp Gly His Ile Gly Ser Phe Ala Cys Lys Met Ala Val Phe Arg Asn  
65 70 75 80  
Asn Gly Asn Gly Asn Cys Val Leu Ala Ile Lys Gly Thr Asp Met Asn  
85 90 95  
Asn Ile Asn Asp Leu Val Asn Asp Leu Thr Met Ile Leu Gly Gly Ile  
100 105 110  
Gly Ser Val Ala Ala Ile Gln Pro Thr Ile Asn Met Ala Gln Glu Leu  
115 120 125  
Ile Asp Gln Tyr Gly Val Asn Leu Ile Thr Gly His Ser Leu Gly Gly  
130 135 140  
Tyr Met Thr Glu Ile Ile Ala Thr Asn Arg Gly Leu Pro Gly Ile Ala  
145 150 155 160  
Phe Cys Ala Pro Gly Ser Asn Gly Pro Ile Val Lys Leu Gly Gly Gln  
165 170 175  
Glu Thr Pro Gly Phe His Asn Val Asn Phe Glu His Asp Pro Ala Gly  
180 185 190  
Asn Val Met Thr Gly Val Tyr Thr His Val Gln Trp Ser Ile Tyr Val  
195 200 205  
Gly Cys Asp Gly Met Thr His Gly Ile Glu Asn Met Val Asn Tyr Phe  
210 215 220  
Lys Asp Lys Arg Asp Leu Thr Asn Arg Asn Ile Gln Gly Arg Ser Glu





Gly Ser Ala Phe Ser Trp Asp Val Asn Glu Gln Phe Phe Asn Ala Ser  
 145 150 155 160  
 Asn Trp Lys Asp Lys Glu Ile Lys Phe Tyr Asn Leu Ile Gly Asp Arg  
 165 170 175  
 Val Lys Thr Asp Phe Phe Lys Ser Lys Ile Phe Pro Ala Ala Phe Glu  
 180 185 190  
 Ser Gly Ser Asp Met Val Ile Arg Val Ala Ala Gly Asn Gln Asn Phe  
 195 200 205  
 Val Arg Tyr Arg Tyr Asp Ser Gln Lys Asp Ser Phe Thr Val Val Asn  
 210 215 220  
 Glu Leu Lys Gly Ile Ala Phe Gly Ala Leu Tyr Gln Tyr Thr His Ser  
 225 230 235 240  
 Asn Asp Asp Tyr Gly Ile Leu Asn Ser Ile Lys Lys Ser Ser Thr Leu  
 245 250 255  
 Glu Asn His Gln Ala Leu Arg Leu Ile Val Glu Cys Leu Lys Val Ser  
 260 265 270  
 Gly Asp Lys Glu Tyr Glu Asn Val Ala Gln Leu Ala Ala Thr  
 275 280 285  
 Lys Glu Thr Arg Glu Lys Arg Gln Gly Tyr Ala Gln Leu Asp Phe Arg  
 290 295 300  
 Phe Arg Asp Asp Glu Gly Phe Pro Ile Asp Asp Tyr Val Val Glu Leu  
 305 310 315 320  
 Gly Val Met Val Asn Gly Lys Pro Lys Pro Ser Lys Thr Val Asp Asp  
 325 330 335  
 Val His Lys Asn Lys Ile Thr Pro Asn His Leu Thr Val Phe Ile Asn  
 340 345 350  
 Leu Lys Glu Leu Glu Pro Asn Leu Lys Tyr Phe Ile Asn Ile Lys Ser  
 355 360 365  
 Ile Ser Glu Ser Ser Met Tyr Ser Tyr Asp Pro Ala Val Arg Thr Ile  
 370 375 380  
 Glu Leu Ala Ser Asn Glu Ile Thr Lys Ile Ile Arg Glu Asp His Thr  
 385 390 395 400  
 Thr Gln Ile Asp Val Ile Leu Ser Arg Thr Pro Ala Lys Asn Leu Phe  
 405 410 415  
 Met Phe His Arg Gly Asp Asp Glu Asp Leu His Val Thr Trp Ser Arg  
 420 425 430  
 Tyr Gly Glu Thr Lys Ser Thr Lys Gln Gly Ile Lys  
 435 440

<210> 77  
 <211> 1026  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 77  
 atggcttatc actttaaaaa cttggtcttc gaaggcgggtg gcgtgaaagg catcgcctac 60  
 gtgggtgctc ttgaagtact tgagagagaa ggcattctga aagacatcaa acgcgtgggt 120  
 ggtacttcgg ctggagcgct ggttgccgtc ttaatcagtt tgggtatac cgcccaagaa 180  
 ttgaaggaca tcctatggaa aatcaatttc caaaactttt tggacagctc gtggggcttg 240  
 gtgcgcaaca cggcacgttt cattgaggat tacggttggt acaaagggtga gttttccgcg 300  
 gaattgggtt cggtgtacat caaggaaaaa acgggcaata gtgaaagcac tttcaaggat 360  
 ctggccaaat caaaagattt ccgtggcctc agccttattg gtagcgatct gtccacagga 420  
 tactcaaagg tggtcagcaa cgaattcacc ccaaacgtca aagtagctga tgcagcccg 480  
 atctccatgt cgataccctt gtttttcaaa gccgttcgctg gtgtaaacgg tgatggacac 540  
 atttacgtcg atggtggact gttagacaac tatgccatca aggtgttcga ccgcgtcaat 600  
 tacgtaaaga ataagaacaa cgtacggtac accgagtatt atgaaaagac caacaagtcg 660  
 ctgaaaagca aaaacaagct gaccaacgaa tacgtctaca ataaagaaac tttgggcttc 720  
 cgattggatg ccaaagaaca gattgagatg tttctcgacc atagtataga accaaaggca 780  
 aaggacattg actcactatt ctcttacacg aaggcttttg tcaccaccct catcgacttt 840  
 caaaacaatg tacatttgca tagtgacgac tggcaacgca cagtctatat cgactcttta 900  
 ggtatcagtt ccaactgactt cggcatctct gactctaaaa aacagaaact cgtcgattca 960

ggcattttgc atacgcaaaa atacctggat tggataaca acgacgaaga gaaagccaac 1020  
 aaatag 1026

<210> 78  
 <211> 341  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 78  
 Met Ala Tyr His Phe Lys Asn Leu Val Phe Glu Gly Gly Gly Val Lys  
 1 5 10 15  
 Gly Ile Ala Tyr Val Gly Ala Leu Glu Val Leu Glu Arg Glu Gly Ile  
 20 25 30  
 Leu Lys Asp Ile Lys Arg Val Ala Gly Thr Ser Ala Gly Ala Leu Val  
 35 40 45  
 Ala Val Leu Ile Ser Leu Gly Tyr Thr Ala Gln Glu Leu Lys Asp Ile  
 50 55 60  
 Leu Trp Lys Ile Asn Phe Gln Asn Phe Leu Asp Ser Ser Trp Gly Leu  
 65 70 75 80  
 Val Arg Asn Thr Ala Arg Phe Ile Glu Asp Tyr Gly Trp Tyr Lys Gly  
 85 90 95  
 Glu Phe Phe Arg Glu Leu Val Ala Gly Tyr Ile Lys Glu Lys Thr Gly  
 100 105 110  
 Asn Ser Glu Ser Thr Phe Lys Asp Leu Ala Lys Ser Lys Asp Phe Arg  
 115 120 125  
 Gly Leu Ser Leu Ile Gly Ser Asp Leu Ser Thr Gly Tyr Ser Lys Val  
 130 135 140  
 Phe Ser Asn Glu Phe Thr Pro Asn Val Lys Val Ala Asp Ala Ala Arg  
 145 150 155 160  
 Ile Ser Met Ser Ile Pro Leu Phe Phe Lys Ala Val Arg Gly Val Asn  
 165 170 175  
 Gly Asp Gly His Ile Tyr Val Asp Gly Gly Leu Leu Asp Asn Tyr Ala  
 180 185 190  
 Ile Lys Val Phe Asp Arg Val Asn Tyr Val Lys Asn Lys Asn Asn Val  
 195 200 205  
 Arg Tyr Thr Glu Tyr Tyr Glu Lys Thr Asn Lys Ser Leu Lys Ser Lys  
 210 215 220  
 Asn Lys Leu Thr Asn Glu Tyr Val Tyr Asn Lys Glu Thr Leu Gly Phe  
 225 230 235 240  
 Arg Leu Asp Ala Lys Glu Gln Ile Glu Met Phe Leu Asp His Ser Ile  
 245 250 255  
 Glu Pro Lys Ala Lys Asp Ile Asp Ser Leu Phe Ser Tyr Thr Lys Ala  
 260 265 270  
 Leu Val Thr Thr Leu Ile Asp Phe Gln Asn Asn Val His Leu His Ser  
 275 280 285  
 Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Ser Leu Gly Ile Ser Ser  
 290 295 300  
 Thr Asp Phe Gly Ile Ser Asp Ser Lys Lys Gln Lys Leu Val Asp Ser  
 305 310 315 320  
 Gly Ile Leu His Thr Gln Lys Tyr Leu Asp Trp Tyr Asn Asn Asp Glu  
 325 330 335  
 Glu Lys Ala Asn Lys  
 340

<210> 79  
 <211> 1701  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

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<400> 79
atgagaaatt tcagcaaggg attgaccagt attttgctta gcatagcgac atccaccagt      60
gcgatggcct ttaccagat cggggccggc ggagcgattc cgatgggcca tgagtggcta      120
acccgccgct cggcgctgga actgctgaat gccgacaatc tggtcggcaa tgaccgggcc      180
gaccacgct tgggctggag cgaaggtctc gccacaatc tcgatctctc gaatgccag      240
aacgaagtgc agcgcataa gagcattacc aagagccacg ccctgtatga gccgcgttac      300
gatgacgttt tcgccgccat cgtcggcgag cgctgggttg ataccgccg tttcaacgtg      360
gccaaggcca ccgtcggcaa gatcgattgc ttcagcgccg tcgcgcaaga gcccgccgat      420
gtgcaacaag accatttcat gcgcggttat gacgacgtgg gtggacaagg gggcgtgaac      480
gctgcccgcc gcgcgcagca gcgctttatc aatcacttcg tcaacgcagc catggccgaa      540
gagaagagca tcaaggcatg ggatggcggc ggttattctt cgctggaaaa agtcagccac      600
aactacttct tgtttgcccg cgcggttcat ttgttccagg attctttcag ccccgaaacac      660
accgtgcgcc tgcctgaaga caattacgtc aaagtccgtc aggtcaaggc gtatctctgc      720
tctgaagggtg ccgaacagca tacgcacaac acgcaagatg ccatcaactt caccagcggc      780
gatgtcatct ggaaacagaa caccgcgtctg gatgcaggct ggagcaccta caaggccagc      840
aactgaagc cggtggcatt ggttgccctc gaagccagca aagatttgtg ggccgccttt      900
attcgacca tggcgtttc ccgcgaggag cgtcgcgccg tcgccgaaca ggaagcgag      960
gctctcgta atcactggtt gtcgttcgag gaacaggaaa tgctgaactg gtacgaagaa     1020
gaagagcacc gcgatcatac gtacgtcaag gaaccgggcc agagcggccc aggttcgtcg     1080
ttattcgatt gcatggttgg tctgggtgtg gcctcgggca gtcaggcgca acgggtggcg     1140
gaactcgatc agcaacgccg ccaatgtttg ttcaacgtca aggccgctac tggctatggc     1200
gatctgaatg atccacacat ggatattccg tacaactggc aatgggtgtc gtcgacgcaa     1260
tggaatatcc ctgcggccga ctggaaaatc ccgcagctgc ccgccgattc agggaaatca     1320
gtcgtcatca agaattcgat caatggcgat ccgctggtgg cacctgccgg gctcaagcac     1380
aacaccgatg tttacggtgc accgggtgag gcgattgaat tcattttcgt cggtgatttc     1440
aaccatgag cgtatttccg caccaaggac aacgcggatc tgttcctgag ttacagcgcg     1500
gtatcgggca agggcttgct gtacaacacg cccaaccagg ccggttatcg tgttcagcct     1560
tatggtgtgc tgtggacgat tgagaatacc tactggaatg atttcctctg gtacaacagc     1620
tcgaacgacc gcatctatgt cagcggcacc ggcgctgcca acaagtcaca ctcccagtg      1680
attattgacg gcttgacgtg a                                     1701

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<210> 80
<211> 566
<212> PRT
<213> Unknown

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<220>
<223> Obtained from an environmental sample.

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<221> SIGNAL
<222> (1)...(23)

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<400> 80
Met Arg Asn Phe Ser Lys Gly Leu Thr Ser Ile Leu Leu Ser Ile Ala
 1           5           10           15
Thr Ser Thr Ser Ala Met Ala Phe Thr Gln Ile Gly Ala Gly Gly Ala
          20           25           30
Ile Pro Met Gly His Glu Trp Leu Thr Arg Arg Ser Ala Leu Glu Leu
          35           40           45
Leu Asn Ala Asp Asn Leu Val Gly Asn Asp Pro Ala Asp Pro Arg Leu
          50           55           60
Gly Trp Ser Glu Gly Leu Ala Asn Asn Leu Asp Leu Ser Asn Ala Gln
65           70           75           80
Asn Glu Val Gln Arg Ile Lys Ser Ile Thr Lys Ser His Ala Leu Tyr
          85           90           95
Glu Pro Arg Tyr Asp Asp Val Phe Ala Ala Ile Val Gly Glu Arg Trp
          100          105          110
Val Asp Thr Ala Gly Phe Asn Val Ala Lys Ala Thr Val Gly Lys Ile
          115          120          125
Asp Cys Phe Ser Ala Val Ala Gln Glu Pro Ala Asp Val Gln Gln Asp
          130          135          140
His Phe Met Arg Arg Tyr Asp Asp Val Gly Gly Gln Gly Gly Val Asn
145          150          155          160

```

Ala Ala Arg Arg Ala Gln Gln Arg Phe Ile Asn His Phe Val Asn Ala  
 165 170 175  
 Ala Met Ala Glu Glu Lys Ser Ile Lys Ala Trp Asp Gly Gly Gly Tyr  
 180 185 190  
 Ser Ser Leu Glu Lys Val Ser His Asn Tyr Phe Leu Phe Gly Arg Ala  
 195 200 205  
 Val His Leu Phe Gln Asp Ser Phe Ser Pro Glu His Thr Val Arg Leu  
 210 215 220  
 Pro Glu Asp Asn Tyr Val Lys Val Arg Gln Val Lys Ala Tyr Leu Cys  
 225 230 235 240  
 Ser Glu Gly Ala Glu Gln His Thr His Asn Thr Gln Asp Ala Ile Asn  
 245 250 255  
 Phe Thr Ser Gly Asp Val Ile Trp Lys Gln Asn Thr Arg Leu Asp Ala  
 260 265 270  
 Gly Trp Ser Thr Tyr Lys Ala Ser Asn Met Lys Pro Val Ala Leu Val  
 275 280 285  
 Ala Leu Glu Ala Ser Lys Asp Leu Trp Ala Ala Phe Ile Arg Thr Met  
 290 295 300  
 Ala Val Ser Arg Glu Glu Arg Arg Ala Val Ala Glu Gln Glu Ala Gln  
 305 310 315 320  
 Ala Leu Val Asn His Trp Leu Ser Phe Asp Glu Gln Glu Met Leu Asn  
 325 330 335  
 Trp Tyr Glu Glu Glu Glu His Arg Asp His Thr Tyr Val Lys Glu Pro  
 340 345 350  
 Gly Gln Ser Gly Pro Gly Ser Ser Leu Phe Asp Cys Met Val Gly Leu  
 355 360 365  
 Gly Val Ala Ser Gly Ser Gln Ala Gln Arg Val Ala Glu Leu Asp Gln  
 370 375 380  
 Gln Arg Arg Gln Cys Leu Phe Asn Val Lys Ala Ala Thr Gly Tyr Gly  
 385 390 395 400  
 Asp Leu Asn Asp Pro His Met Asp Ile Pro Tyr Asn Trp Gln Trp Val  
 405 410 415  
 Ser Ser Thr Gln Trp Lys Ile Pro Ala Ala Asp Trp Lys Ile Pro Gln  
 420 425 430  
 Leu Pro Ala Asp Ser Gly Lys Ser Val Val Ile Lys Asn Ser Ile Asn  
 435 440 445  
 Gly Asp Pro Leu Val Ala Pro Ala Gly Leu Lys His Asn Thr Asp Val  
 450 455 460  
 Tyr Gly Ala Pro Gly Glu Ala Ile Glu Phe Ile Phe Val Gly Asp Phe  
 465 470 475 480  
 Asn His Glu Ala Tyr Phe Arg Thr Lys Asp Asn Ala Asp Leu Phe Leu  
 485 490 495  
 Ser Tyr Ser Ala Val Ser Gly Lys Gly Leu Leu Tyr Asn Thr Pro Asn  
 500 505 510  
 Gln Ala Gly Tyr Arg Val Gln Pro Tyr Gly Val Leu Trp Thr Ile Glu  
 515 520 525  
 Asn Thr Tyr Trp Asn Asp Phe Leu Trp Tyr Asn Ser Ser Asn Asp Arg  
 530 535 540  
 Ile Tyr Val Ser Gly Thr Gly Ala Ala Asn Lys Ser His Ser Gln Trp  
 545 550 555 560  
 Ile Ile Asp Gly Leu Gln  
 565

<210> 81  
 <211> 1422  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 81  
 atgaaaaaga aattatgtac aatggctctt gtaacagcaa tatcttctgg tgttggttacg 60  
 attccaacag aagcacaagc ttgtggaata ggcgaagtaa tgaaacagga gaaccaagag 120



225		230		235		240									
His	Glu	Thr	Ala	Arg	Leu	Ala	Lys	Val	Glu	Ile	Gly	Asn	Ile	Thr	Asn
				245					250					255	
Asp	Glu	Ile	Lys	Ser	His	Tyr	Asn	Lys	Gly	Asn	Asn	Ala	Leu	Trp	Gln
			260					265					270		
Gln	Glu	Val	Met	Pro	Ala	Val	Gln	Arg	Ser	Leu	Glu	Asn	Ala	Gln	Arg
		275					280					285			
Asn	Thr	Ala	Gly	Phe	Ile	His	Leu	Trp	Phe	Lys	Thr	Phe	Val	Gly	Asn
	290					295					300				
Thr	Ala	Ala	Glu	Glu	Ile	Glu	Asn	Thr	Val	Val	Lys	Asp	Ser	Lys	Gly
305					310					315					320
Glu	Ala	Ile	Gln	Asp	Asn	Lys	Lys	Tyr	Phe	Val	Val	Pro	Ser	Glu	Phe
			325					330						335	
Leu	Asn	Arg	Gly	Leu	Thr	Phe	Glu	Val	Tyr	Ala	Arg	Asn	Asp	Tyr	Ala
		340					345					350			
Leu	Leu	Ser	Asn	Tyr	Val	Asp	Asp	Ser	Lys	Val	His	Gly	Thr	Pro	Val
	355					360					365				
Gln	Phe	Val	Phe	Asp	Lys	Asp	Asn	Asn	Gly	Ile	Leu	His	Arg	Gly	Glu
370					375					380					
Ser	Val	Leu	Leu	Lys	Met	Thr	Gln	Ser	Asn	Tyr	Asp	Asn	Tyr	Val	Phe
385				390					395					400	
Leu	Asn	Tyr	Ser	Asn	Leu	Thr	Asn	Trp	Val	His	Leu	Ala	Gln	Gln	Lys
			405				410						415		
Thr	Asn	Thr	Ala	Gln	Phe	Lys	Val	Tyr	Pro	Asn	Pro	Asn	Asn	Pro	Ser
	420						425				430				
Glu	Tyr	Tyr	Leu	Tyr	Thr	Asp	Gly	Tyr	Pro	Val	Asn	Tyr	Gln	Glu	Asn
	435					440				445					
Gly	Asn	Gly	Lys	Ser	Trp	Ile	Val	Leu	Gly	Lys	Lys	Thr	Asp	Thr	Pro
450				455			460								
Lys	Ala	Trp	Lys	Phe	Ile	Gln	Ala	Glu							
465				470											

<210> 83

<211> 1290

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 83

atgaaaaaga	tagtgattta	ttcattttgta	gcagggggtta	tgacatcagg	cggcgtatttt	60
gccgccagtg	acaatatattgt	ggagacgtcg	accccaccac	agcatcaggc	cccaagcaga	120
caggacaggg	cattatttcgc	gggtgatata	acaacctata	taaaatgtgt	ctacaaagtg	180
gatggccagg	atgacagcaa	tccatcctca	tcttggttat	gggcgaaagt	gggtagcaac	240
tatgcgaagc	tgaaggggta	ttggtataat	tcaatgccgc	tggaacaacat	gtttttact	300
gaagtaccct	atgcagaggt	gatggacttg	tgtaatatga	ccctgaaggc	ggtaggtgcc	360
aactccactc	ttgttattcc	atatgcatcg	gattacaccc	tgctctatta	ctatgtgatt	420
tggaatcaag	gggctaacca	gccggttatc	aacgttggcg	gcagagagct	tgaccgtatg	480
gtggtccttg	gtgacagctt	gagcgatacc	gtcaatgtct	ataacggctc	gtacgggtacc	540
gtgccgaata	gtacctcctg	gttattgggc	catttctcta	acggaaagct	ttggcatgaa	600
tacctttcca	cggatttgaa	tctgcctagc	tatgtgtggg	cgactggcaa	tgcggagagt	660
ggagagaaac	ccttctttta	cggattcagt	aagcaggtgg	attctttcag	ggattatcac	720
gctcgacta	aaggctacga	tattagcaag	acgttgttta	ccgttctggt	tggtggaaat	780
gattttataa	cgggggggaa	aagcgccgat	gaggtcattg	agcaatatac	ggtgtcattg	840
aactacttgg	ctcaactagg	ggcgaagcag	gttgcaattt	tccgcttgcc	agatttttca	900
gtgataccca	gcgtttcaac	gtggacagag	gctgataagg	acaaactgag	agagaatagt	960
gttcagttta	atgaccaagc	cgagaagctg	atcgctaacc	taaacgcggc	acatccccaa	1020
acgacgtttt	atacgtctgag	gttggatgac	gcttttaagc	aggtgttgga	aaacagcgac	1080
caatacggct	ttgttaataa	gactgatacc	tgccctggata	tttcccaagg	cggatacaac	1140
tatgccattg	gggcccgcgc	gaaaacggca	tgtaagagca	gcaatgcggc	gtttgtattc	1200
tgggacaata	tgcattccgac	caccaaaaca	cacggattgt	tggccgatct	tttaaaagat	1260
gatgtggtac	gcggcctcgc	tcgcgccatga				1290

<210> 84  
 <211> 429  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(22)

<400> 84  
 Met Lys Lys Ile Val Ile Tyr Ser Phe Val Ala Gly Val Met Thr Ser  
 1 5 10 15  
 Gly Gly Val Phe Ala Ala Ser Asp Asn Ile Val Glu Thr Ser Thr Pro  
 20 25 30  
 Pro Gln His Gln Ala Pro Ser Arg Gln Asp Arg Ala Leu Phe Ala Gly  
 35 40 45  
 Asp Thr Thr Thr Tyr Ile Lys Cys Val Tyr Lys Val Asp Gly Gln Asp  
 50 55 60  
 Asp Ser Asn Pro Ser Ser Ser Trp Leu Trp Ala Lys Val Gly Ser Asn  
 65 70 75 80  
 Tyr Ala Lys Leu Lys Gly Tyr Trp Tyr Asn Ser Met Pro Leu Ala Asn  
 85 90 95  
 Met Phe Tyr Thr Glu Val Pro Tyr Ala Glu Val Met Asp Leu Cys Asn  
 100 105 110  
 Ser Thr Leu Lys Ala Val Gly Ala Asn Ser Thr Leu Val Ile Pro Tyr  
 115 120 125  
 Ala Ser Asp Tyr Thr Leu Ser Tyr Tyr Tyr Val Ile Trp Asn Gln Gly  
 130 135 140  
 Ala Asn Gln Pro Val Ile Asn Val Gly Gly Arg Glu Leu Asp Arg Met  
 145 150 155 160  
 Val Val Phe Gly Asp Ser Leu Ser Asp Thr Val Asn Val Tyr Asn Gly  
 165 170 175  
 Ser Tyr Gly Thr Val Pro Asn Ser Thr Ser Trp Leu Leu Gly His Phe  
 180 185 190  
 Ser Asn Gly Lys Leu Trp His Glu Tyr Leu Ser Thr Val Leu Asn Leu  
 195 200 205  
 Pro Ser Tyr Val Trp Ala Thr Gly Asn Ala Glu Ser Gly Glu Lys Pro  
 210 215 220  
 Phe Phe Asn Gly Phe Ser Lys Gln Val Asp Ser Phe Arg Asp Tyr His  
 225 230 235 240  
 Ala Arg Thr Lys Gly Tyr Asp Ile Ser Lys Thr Leu Phe Thr Val Leu  
 245 250 255  
 Phe Gly Gly Asn Asp Phe Ile Thr Gly Gly Lys Ser Ala Asp Glu Val  
 260 265 270  
 Ile Glu Gln Tyr Thr Val Ser Leu Asn Tyr Leu Ala Gln Leu Gly Ala  
 275 280 285  
 Lys Gln Val Ala Ile Phe Arg Leu Pro Asp Phe Ser Val Ile Pro Ser  
 290 295 300  
 Val Ser Thr Trp Thr Glu Ala Asp Lys Asp Lys Leu Arg Glu Asn Ser  
 305 310 315 320  
 Val Gln Phe Asn Asp Gln Ala Glu Lys Leu Ile Ala Lys Leu Asn Ala  
 325 330 335  
 Ala His Pro Gln Thr Thr Phe Tyr Thr Leu Arg Leu Asp Asp Ala Phe  
 340 345 350  
 Lys Gln Val Leu Glu Asn Ser Asp Gln Tyr Gly Phe Val Asn Lys Thr  
 355 360 365  
 Asp Thr Cys Leu Asp Ile Ser Gln Gly Gly Tyr Asn Tyr Ala Ile Gly  
 370 375 380  
 Ala Arg Ala Lys Thr Ala Cys Lys Ser Ser Asn Ala Ala Phe Val Phe  
 385 390 395 400  
 Trp Asp Asn Met His Pro Thr Thr Lys Thr His Gly Leu Leu Ala Asp  
 405 410 415

Leu Leu Lys Asp Asp Val Val Arg Gly Leu Ala Ala Pro  
 420 425

<210> 85  
 <211> 1038  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 85  
 atgacaacac aathtagaaa cttgatattt gaaggcggcg gtgtaaaagg tgttgcttac 60  
 attggcgcca tgcagattct tgaaaatcgt ggcgtgttgc aagatattcg ccgagtcgga 120  
 ggggtgcagtg cgggtgcgat taacgcgctg atttttgcmc taggttacac ggtccgtgaa 180  
 caaaaagaga tcttacaagc caccgatattt aaccagttta tggataactc ttgggggggtt 240  
 attcgtgata ttgcagagct tgctcgagac tttggctgga ataagggtga tttctttagt 300  
 agctggatag gtgatttgat tcatcgtcgt ttggggaatc gccgagcgac gttcaaagat 360  
 ctgcaaaagg ccaagcttcc tgatctttat gtcatcggta ctaatctgtc tacagggttt 420  
 gcagaggtgt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc 480  
 tccatgtcga taccgctgtt ctttgcggcc gtgcgtcacg gtgatcgaca agatgtgtat 540  
 gtcgatgggg gtgttcaact taactatccg attaaactgt ttgatcggga gcgttacatt 600  
 gatttggcca aagatcccgg tgccgttcgg cgaacgggtt attacaacaa agaaaacgct 660  
 cgcttttcagc ttgatcggcc gggccatagc ccctatgttt acaatcgcca gaccttgggt 720  
 ttgcgactgg atagtcgcga ggagataggg ctctttcgtt atgacgaacc cctcaagggc 780  
 aaacccatta agtccttcac tgactacgct cgacaacttt tcgggtgcgtt gatgaatgca 840  
 caggaaaaga ttcactctaca tggcgatgat tggcaacgca cgatctatat cgatacattg 900  
 gatgtgggta cgacggactt caatctttct gatgcaacta agcaagcact gattgagcaa 960  
 ggaattaacg gcaccgaaaa ttatttcgag tggtttgata atccgttaga gaagcctgtg 1020  
 aatagagtgg agtcatag 1038

<210> 86  
 <211> 345  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 86  
 Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys  
 1 5 10 15  
 Gly Val Ala Tyr Ile Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val  
 20 25 30  
 Leu Gln Asp Ile Arg Arg Val Gly Cys Ser Ala Gly Ala Ile Asn  
 35 40 45  
 Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile  
 50 55 60  
 Leu Gln Ala Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val  
 65 70 75 80  
 Ile Arg Asp Ile Arg Arg Leu Ala Arg Asp Phe Gly Trp Asn Lys Gly  
 85 90 95  
 Asp Phe Phe Ser Ser Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly  
 100 105 110  
 Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp  
 115 120 125  
 Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe  
 130 135 140  
 Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile  
 145 150 155 160  
 Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg  
 165 170 175  
 Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys  
 180 185 190



Leu Phe Asp Arg Glu Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala  
 195 200 205  
 Val Arg Arg Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu  
 210 215 220  
 Asp Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly  
 225 230 235 240  
 Leu Arg Leu Asp Ser Arg Glu Glu Ile Gly Leu Phe Arg Tyr Asp Glu  
 245 250 255  
 Pro Leu Lys Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln  
 260 265 270  
 Leu Phe Gly Ala Leu Met Asn Ala Gln Glu Lys Ile His Leu His Gly  
 275 280 285  
 Asp Asp Trp Gln Arg Thr Ile Tyr Ile Asp Thr Leu Asp Val Gly Thr  
 290 295 300  
 Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln  
 305 310 315 320  
 Gly Ile Asn Gly Thr Glu Asn Tyr Phe Glu Trp Phe Asp Asn Pro Leu  
 325 330 335  
 Glu Lys Pro Val Asn Arg Val Glu Ser  
 340 345

<210> 87  
 <211> 870  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 87  
 atgtcaaaga aactcgtaat atcggtagcg ggcggcggag cactcggaat cggaccactc 60  
 gcattcctgt gcaagattga acagatgctg ggaaagaaga taccocagggt tgcgcaggca 120  
 tacgccggca cttcaaccgg agcaataatt gcggcaggac tggccgaagg ctactccgcg 180  
 catgaactgt tcgacctata caaatcaaat ctcagcaaga tattcaccaa atacagctgg 240  
 tacaaacgcc tgcagccaac gtgtcctaca tatgacaaca gtaacctaaa gaaattactg 300  
 aaggacaaat tcaagggcaa ggtcggcgac tggaaaactc ccgtatacat cccggcaaca 360  
 cacatgaacg gccaatccgt agaaaagggtg tgggacttgg gtgacaagaa tgttgacaag 420  
 tggtttgcca ttctgacaag taccgcggca ccaacctatt tcgactgcat atacgacgac 480  
 gagaagaact gctacatcga tgggtggcatg tgggtgcaacg caccaatcga tgtgcttaat 540  
 gcaggcctga tcaagtccgg ctggtccaac tacaaggctc tggacctgga gaccggcatg 600  
 gacacaccga atacggaaag cggaacaacg acacttctcg gatgggggga atacatcata 660  
 agcaactggg tagcccggtc cagcaagtcc ggcgaatacg aggtaaaggc cataatcggg 720  
 gaagacaatg tatgtgttgc ccgtccatac gtaagcaaga aaccgaagat ggatgacgtg 780  
 gacagcaaga cgctggatga agtcgtggat atctgggaaa actacttcta cgccaagcag 840  
 aaagacatcg catcgtggct gaaaatctag 870

<210> 88  
 <211> 289  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 88  
 Met Ser Lys Lys Leu Val Ile Ser Val Ala Gly Gly Gly Ala Leu Gly  
 1 5 10 15  
 Ile Gly Pro Leu Ala Phe Leu Cys Lys Ile Glu Gln Met Leu Gly Lys  
 20 25 30  
 Lys Ile Pro Gln Val Ala Gln Ala Tyr Ala Gly Thr Ser Thr Gly Ala  
 35 40 45  
 Ile Ile Ala Ala Gly Leu Ala Glu Gly Tyr Ser Ala His Glu Leu Phe  
 50 55 60  
 Asp Leu Tyr Lys Ser Asn Leu Ser Lys Ile Phe Thr Lys Tyr Ser Trp

65					70					75					80
Tyr	Lys	Arg	Leu	Gln	Pro	Thr	Cys	Pro	Thr	Tyr	Asp	Asn	Ser	Asn	Leu
				85					90					95	
Lys	Lys	Leu	Leu	Lys	Asp	Lys	Phe	Lys	Gly	Lys	Val	Gly	Asp	Trp	Lys
			100					105					110		
Thr	Pro	Val	Tyr	Ile	Pro	Ala	Thr	His	Met	Asn	Gly	Gln	Ser	Val	Glu
		115					120					125			
Lys	Val	Trp	Asp	Leu	Gly	Asp	Lys	Asn	Val	Asp	Lys	Trp	Phe	Ala	Ile
	130					135					140				
Leu	Thr	Ser	Thr	Ala	Ala	Pro	Thr	Tyr	Phe	Asp	Cys	Ile	Tyr	Asp	Asp
145					150					155					160
Glu	Lys	Asn	Cys	Tyr	Ile	Asp	Gly	Gly	Met	Trp	Cys	Asn	Ala	Pro	Ile
			165						170					175	
Asp	Val	Leu	Asn	Ala	Gly	Leu	Ile	Lys	Ser	Gly	Trp	Ser	Asn	Tyr	Lys
		180						185					190		
Val	Leu	Asp	Leu	Glu	Thr	Gly	Met	Asp	Thr	Pro	Asn	Thr	Glu	Ser	Gly
	195					200					205				
Asn	Lys	Thr	Leu	Leu	Gly	Trp	Gly	Glu	Tyr	Ile	Ile	Ser	Asn	Trp	Val
	210				215						220				
Ala	Arg	Ser	Ser	Lys	Ser	Gly	Glu	Tyr	Glu	Val	Lys	Ala	Ile	Ile	Gly
225					230					235					240
Glu	Asp	Asn	Val	Cys	Val	Ala	Arg	Pro	Tyr	Val	Ser	Lys	Lys	Pro	Lys
			245					250						255	
Met	Asp	Asp	Val	Asp	Ser	Lys	Thr	Leu	Asp	Glu	Val	Val	Asp	Ile	Trp
		260					265						270		
Glu	Asn	Tyr	Phe	Tyr	Ala	Lys	Gln	Lys	Asp	Ile	Ala	Ser	Trp	Leu	Lys
	275						280					285			

Ile

<210> 89  
 <211> 1422  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 89

atgaaaaaga	aattatgtac	actggcctttt	gtaacagcaa	tatcttctat	cgctatcaca	60
attccaacag	aagcacaagc	ttgtggaata	ggcgaagtaa	tgaacagga	gaaccaagag	120
cacaaacgtg	tgaagagatg	gtctgcggaa	catccacatc	atcctaata	aagtacgcac	180
ttatggattg	cgcgaaatgc	aattcaaata	atggcccgtg	atcaagataa	gacgggttcaa	240
gaaaaatgaat	tacaattttt	aaatactcct	gaatataagg	agttatttga	aagaggctctt	300
tatgatgctg	attaccttga	tgaatttaac	gatggaggta	caggtacaat	cggcattgat	360
gggctaatta	aaggagggtg	gaaatctcat	ttttacgata	ccgatacgag	aaagaactat	420
aaaggggaag	agaaccaaac	agctctctct	caaggagata	aatattttta	attagcaggc	480
gattacttta	agaaagagga	ttggaaacaa	gctttctatt	atttaggtgt	tgcgacgcac	540
tacttcacag	atgctactca	gccaatgcat	gctgctaatt	ttacagccgt	cgacacgagt	600
gctttaaagt	ttcatagcgc	ttttgaaaat	tatgtgacga	caattcagac	acagtatgaa	660
gtatctgatg	gtgagggcgt	atataattta	gtgaattcta	atgatccaaa	acagtggatc	720
catgaaacag	cgagactcgc	aaaagtggaa	atcggaacaa	ttaccaatga	cgagattaaa	780
tctcactata	ataaaggaaa	caatgctctt	tggcaacaag	aagttatgcc	agctgtccag	840
aggagtattag	agaacgcaca	aagaacacg	gcgggattta	ttcatttatg	gtttaaaaca	900
tttggttgca	atactgccgc	tgaagaaatt	gaaaataactg	tagtgaaaga	ttctaaagga	960
gaagcaatac	aagataataa	aaaatacttc	gtagtgccaa	gtgagtttct	aaatagaggt	1020
ttgacctttg	aagtatatgc	aaggaatgac	tatgcactat	tatctaatta	cgtagatgat	1080
agtaaagtgc	atggtacgcc	agttcagttt	gtatttgata	aagataataa	cggtatcctt	1140
catcgaggag	aaagtatact	gctgaaaatg	acgcaatcta	actatgataa	ttacgtatct	1200
ctaaactact	ctaacttgac	aaactgggta	catcttgccg	aacaaaaaac	aaatactgca	1260
cagtttaaaag	tgtatccaaa	tccgaataac	ccatctgaat	attacctata	tacagatgga	1320
tacccagtaa	attatcaaga	aaatggtaac	ggaaagagct	ggattgtgtt	aggaaagaaa	1380
acagatacac	caaaagcttg	gaaatttata	caggctgaat	ag		1422

<210> 90  
 <211> 473  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(25)

<400> 90  
 Met Lys Lys Lys Leu Cys Thr Leu Ala Phe Val Thr Ala Ile Ser Ser  
 1 5 10 15  
 Ile Ala Ile Thr Ile Pro Thr Glu Ala Gln Ala Cys Gly Ile Gly Glu  
 20 25 30  
 Val Met Lys Gln Glu Asn Gln Glu His Lys Arg Val Lys Arg Trp Ser  
 35 40 45  
 Ala Glu His Pro His His Pro Asn Glu Ser Thr His Leu Trp Ile Ala  
 50 55 60  
 Arg Asn Ala Ile Gln Ile Met Ala Arg Asn Gln Asp Lys Thr Val Gln  
 65 70 75 80  
 Glu Asn Glu Leu Gln Phe Leu Asn Thr Pro Glu Tyr Lys Glu Leu Phe  
 85 90 95  
 Glu Arg Gly Leu Tyr Asp Ala Asp Tyr Leu Asp Glu Phe Asn Asp Gly  
 100 105 110  
 Gly Thr Gly Thr Ile Gly Ile Asp Gly Leu Ile Lys Gly Gly Trp Lys  
 115 120 125  
 Ser His Phe Tyr Asp Pro Asp Thr Arg Lys Asn Tyr Lys Gly Glu Glu  
 130 135 140  
 Glu Pro Thr Ala Leu Ser Gln Gly Asp Lys Tyr Phe Lys Leu Ala Gly  
 145 150 155 160  
 Asp Tyr Phe Lys Lys Glu Asp Trp Lys Gln Ala Phe Tyr Tyr Leu Gly  
 165 170 175  
 Val Ala Thr His Tyr Phe Thr Asp Ala Thr Gln Pro Met His Ala Ala  
 180 185 190  
 Asn Phe Thr Ala Val Asp Thr Ser Ala Leu Lys Phe His Ser Ala Phe  
 195 200 205  
 Glu Asn Tyr Val Thr Thr Ile Gln Thr Gln Tyr Glu Val Ser Asp Gly  
 210 215 220  
 Glu Gly Val Tyr Asn Leu Val Asn Ser Asn Asp Pro Lys Gln Trp Ile  
 225 230 235 240  
 His Glu Thr Ala Arg Leu Ala Lys Val Glu Ile Gly Asn Ile Thr Asn  
 245 250 255  
 Asp Glu Ile Lys Ser His Tyr Asn Lys Gly Asn Asn Ala Leu Trp Gln  
 260 265 270  
 Gln Glu Val Met Pro Ala Val Gln Arg Ser Leu Glu Asn Ala Gln Arg  
 275 280 285  
 Asn Thr Ala Gly Phe Ile His Leu Trp Phe Lys Thr Phe Val Gly Asn  
 290 295 300  
 Thr Ala Ala Glu Glu Ile Glu Asn Thr Val Val Lys Asp Ser Lys Gly  
 305 310 315 320  
 Glu Ala Ile Gln Asp Asn Lys Lys Tyr Phe Val Val Pro Ser Glu Phe  
 325 330 335  
 Leu Asn Arg Gly Leu Thr Phe Glu Val Tyr Ala Arg Asn Asp Tyr Ala  
 340 345 350  
 Leu Leu Ser Asn Tyr Val Asp Asp Ser Lys Val His Gly Thr Pro Val  
 355 360 365  
 Gln Phe Val Phe Asp Lys Asp Asn Asn Gly Ile Leu His Arg Gly Glu  
 370 375 380  
 Ser Ile Leu Leu Lys Met Thr Gln Ser Asn Tyr Asp Asn Tyr Val Phe  
 385 390 395 400  
 Leu Asn Tyr Ser Asn Leu Thr Asn Trp Val His Leu Ala Gln Gln Lys  
 405 410 415

Thr Asn Thr Ala Gln Phe Lys Val Tyr Pro Asn Pro Asn Asn Pro Ser  
420 425 430  
Glu Tyr Tyr Leu Tyr Thr Asp Gly Tyr Pro Val Asn Tyr Gln Glu Asn  
435 440 445  
Gly Asn Gly Lys Ser Trp Ile Val Leu Gly Lys Lys Thr Asp Thr Pro  
450 455 460  
Lys Ala Trp Lys Phe Ile Gln Ala Glu  
465 470

<210> 91  
<211> 1035  
<212> DNA  
<213> Unknown

<220>  
<223> Obtained from an environmental sample.

<400> 91  
atgacaaccc aatttagaaa cctgatcttt gagggcggcg gtgtaaaggg cattgcttac 60  
gtcggagcaa tgcagattct tgaaaatcgt ggtgtattac aagatattca ccgagtcgga 120  
ggttgtagtg cgggtgcgat taacgcgctg atttttgcgc tgggttacac agtccgtgag 180  
caaaaagaga tcttacaaat taccgatctt aaccagttta tggataactc gtgggggtgtt 240  
attcgggata ttcgcaggct tgcgagagaa tttggctgga ataagggtaa cttctttaat 300  
acctggatag gtgatttgat tcatcgtcgt ttgggtaatc gccgagccac gttcaaagat 360  
ctgcaaaagg caaagcttcc tgatctttat gtcatcggta ctaatctgtc tacagggttt 420  
gcagaggttt tttctgccga aagacacccc gatatggagc tggcgacagc ggtgcgtatc 480  
tccatgtcga taccgctggt ctttgcggcc gtgcgtcacg gtgacgaca agatgtgtat 540  
gtcgatgggg gtgtgcagct taactaccgc atcaagctgt ttgatcgaaac tcgttatatt 600  
gacctcgcca aagatccggg tgctgctcgc cacacgggtt attacaataa agagaatgct 660  
cgttttcagc ttgagcgacc gggccacagt ccttatgtgt acaatcgcca aacattaggc 720  
ttgcgtcttg acagtcgtga agagatagcg ctgtttcgtt acgacgaacc tcttcagggt 780  
aaaccatta agtccttcac tgactacgct cgacaacttt ttggtgcgct gaagaatgca 840  
cagggaaaca ttcacctaca tggcgatgat tggcagcgca cggctctatat cgatacattg 900  
gatgtgggta cgacggattt caatctttct gatgcaacca agcaagcact gattgaacag 960  
ggaattaacg gcaccgaaaa ttatttcgag tggtttgata atccgtttga gaagcctgtg 1020  
aatagagtgg agtaa 1035

<210> 92  
<211> 344  
<212> PRT  
<213> Unknown

<220>  
<223> Obtained from an environmental sample.

<400> 92  
Met Thr Thr Gln Phe Arg Asn Leu Ile Phe Glu Gly Gly Gly Val Lys  
1 5 10 15  
Gly Ile Ala Tyr Val Gly Ala Met Gln Ile Leu Glu Asn Arg Gly Val  
20 25 30  
Leu Gln Asp Ile His Arg Val Gly Gly Cys Ser Ala Gly Ala Ile Asn  
35 40 45  
Ala Leu Ile Phe Ala Leu Gly Tyr Thr Val Arg Glu Gln Lys Glu Ile  
50 55 60  
Leu Gln Ile Thr Asp Phe Asn Gln Phe Met Asp Asn Ser Trp Gly Val  
65 70 75 80  
Ile Arg Asp Ile Arg Arg Leu Ala Arg Glu Phe Gly Trp Asn Lys Gly  
85 90 95  
Asn Phe Phe Asn Thr Trp Ile Gly Asp Leu Ile His Arg Arg Leu Gly  
100 105 110  
Asn Arg Arg Ala Thr Phe Lys Asp Leu Gln Lys Ala Lys Leu Pro Asp  
115 120 125  
Leu Tyr Val Ile Gly Thr Asn Leu Ser Thr Gly Phe Ala Glu Val Phe  
130 135 140

Ser Ala Glu Arg His Pro Asp Met Glu Leu Ala Thr Ala Val Arg Ile  
145 150 155 160  
Ser Met Ser Ile Pro Leu Phe Phe Ala Ala Val Arg His Gly Asp Arg  
165 170 175  
Gln Asp Val Tyr Val Asp Gly Gly Val Gln Leu Asn Tyr Pro Ile Lys  
180 185 190  
Leu Phe Asp Arg Thr Arg Tyr Ile Asp Leu Ala Lys Asp Pro Gly Ala  
195 200 205  
Ala Arg His Thr Gly Tyr Tyr Asn Lys Glu Asn Ala Arg Phe Gln Leu  
210 215 220  
Glu Arg Pro Gly His Ser Pro Tyr Val Tyr Asn Arg Gln Thr Leu Gly  
225 230 235 240  
Leu Arg Leu Asp Ser Arg Glu Glu Ile Ala Leu Phe Arg Tyr Asp Glu  
245 250 255  
Pro Leu Gln Gly Lys Pro Ile Lys Ser Phe Thr Asp Tyr Ala Arg Gln  
260 265 270  
Leu Phe Gly Ala Leu Lys Asn Ala Gln Glu Asn Ile His Leu His Gly  
275 280 285  
Asp Asp Trp Gln Arg Thr Val Tyr Ile Asp Thr Leu Asp Val Gly Thr  
290 295 300  
Thr Asp Phe Asn Leu Ser Asp Ala Thr Lys Gln Ala Leu Ile Glu Gln  
305 310 315 320  
Gly Ile Asn Gly Thr Glu Asn Tyr Phe Glu Trp Phe Asp Asn Pro Phe  
325 330 335  
Glu Lys Pro Val Asn Arg Val Glu  
340

<210> 93  
<211> 963  
<212> DNA  
<213> Unknown

<220>  
<223> Obtained from an environmental sample.

<400> 93  
gtgattactt tgataaaaaa atgtttatta gtattgacga tgactctatt atcaggggtt 60  
ttcgtaccgc tgcagccatc atatgctact gaaaattatc caaatgattt taaactgttg 120  
caacataatg tattttttatt gcctgaatca gtttcttatt ggggtcagga cgaacgtgca 180  
gattatatga gtaatgcaga ttactttaag ggacatgatg ctctgctctt aaatgagctt 240  
tttgacaatg gaaattcgaa cgtgctgcta atgaacttat ccaaggaata tacatatcaa 300  
acgccagtgc ttggccgttc gatgagtggg tgggatgaaa ctagaggaag ctatttcta 360  
tttgtaccog aagatggtgg ttagcaatt atcagtaaat ggccaatcgt ggagaaaata 420  
cagcatgttt acgcgaatgg ttgcggtgca gactattatg caaataaagg atttgtttat 480  
gcaaaagtac aaaaaggagg taaattctat catcttatca gcactcatgc tcaagccgaa 540  
gataccgggt gtgatcaggg tgaaggagca gaaattcgtc attcacagtt tcaagaaatc 600  
aacgacttta ttaaaaataa aaacattccg aaagatgaag tgggtatttat tgggtgtgac 660  
tttaatgtga tgaagagtga cacaacagag tacaatagca tggtatcaac attaaatgtc 720  
aatgcgccta ccgaatatatt agggcataac tctacttggg acccagaaac gaacagcatt 780  
acaggttaca attaccctga ttatgcgcca cagcatttag attatatttt tgtggaaaaa 840  
gatcataaac aaccaagttc atgggtaaat gaaacgatta ctccgaagtc tccaacttgg 900  
aaggcaatct atgagtataa tgattattcc gatcactatc ctgttaaagc atacgtaaaa 960  
taa 963

<210> 94  
<211> 320  
<212> PRT  
<213> Unknown

<220>  
<223> Obtained from an environmental sample.

<221> SIGNAL  
<222> (1)...(29)

<400> 94

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Met Ile Thr Leu Ile Lys Lys Cys Leu Leu Val Leu Thr Met Thr Leu
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Leu Ser Gly Val Phe Val Pro Leu Gln Pro Ser Tyr Ala Thr Glu Asn
 20           25           30
Tyr Pro Asn Asp Phe Lys Leu Leu Gln His Asn Val Phe Leu Leu Pro
 35           40           45
Glu Ser Val Ser Tyr Trp Gly Gln Asp Glu Arg Ala Asp Tyr Met Ser
 50           55           60
Asn Ala Asp Tyr Phe Lys Gly His Asp Ala Leu Leu Asn Glu Leu
 65           70           75           80
Phe Asp Asn Gly Asn Ser Asn Val Leu Leu Met Asn Leu Ser Lys Glu
 85           90           95
Tyr Thr Tyr Gln Thr Pro Val Leu Gly Arg Ser Met Ser Gly Trp Asp
100           105           110
Glu Thr Arg Gly Ser Tyr Ser Asn Phe Val Pro Glu Asp Gly Gly Val
115           120           125
Ala Ile Ile Ser Lys Trp Pro Ile Val Glu Lys Ile Gln His Val Tyr
130           135           140
Ala Asn Gly Cys Gly Ala Asp Tyr Tyr Ala Asn Lys Gly Phe Val Tyr
145           150           155           160
Ala Lys Val Gln Lys Gly Asp Lys Phe Tyr His Leu Ile Ser Thr His
165           170           175
Ala Gln Ala Glu Asp Thr Gly Cys Asp Gln Gly Glu Gly Ala Glu Ile
180           185           190
Arg His Ser Gln Phe Gln Glu Ile Asn Asp Phe Ile Lys Asn Lys Asn
195           200           205
Ile Pro Lys Asp Glu Val Val Phe Ile Gly Gly Asp Phe Asn Val Met
210           215           220
Lys Ser Asp Thr Thr Glu Tyr Asn Ser Met Leu Ser Thr Leu Asn Val
225           230           235           240
Asn Ala Pro Thr Glu Tyr Leu Gly His Asn Ser Thr Trp Asp Pro Glu
245           250           255
Thr Asn Ser Ile Thr Gly Tyr Asn Tyr Pro Asp Tyr Ala Pro Gln His
260           265           270
Leu Asp Tyr Ile Phe Val Glu Lys Asp His Lys Gln Pro Ser Ser Trp
275           280           285
Val Asn Glu Thr Ile Thr Pro Lys Ser Pro Thr Trp Lys Ala Ile Tyr
290           295           300
Glu Tyr Asn Asp Tyr Ser Asp His Tyr Pro Val Lys Ala Tyr Val Lys
305           310           315           320
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<210> 95

<211> 1038

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 95

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ataggtgcga tgcagggtgct ggatcagcgc gggtattttgg gtgataacat caaacgcgtt      120
ggtggaacca gtgcagggtgc cataaatgcg ctgattttatt cgtaggata tgacatccac      180
gaacaacaag agatactgaa ctctacagat tttaaaaagt ttatggataa ctcttttgga      240
tttgtgaggg atttcagaag gctatggaat gaatttggat ggaatagagg agactttttt      300
cttaaattggt cagggtgagct gatcaaaaat aaattgggca cctcaaaagc caccttttcag      360
gatttgaagg atgccggtca gccagatttg tatgtaattg gaacaaattt atcgacgggg      420
ttttccgaga ctttttcata tgaacgtcac cccgatatga ctcttgacaga agccgtaaga      480
atcagtatgt cgcttccgct gtttttcagg gctgtgcggt tgggcgacag gaatgatgta      540
tatgtggatg gtgggggttca gctcaattac ccggtaaaac tatttgatcg tgaaaaatat      600
attgatatgg ataatgaggc ggctgcagca cgattttactg attattacaa caaagaaaat      660
gccagatattt cgctccagcg gcctggacga agcccctatg tatataatcg tcaaaccctt      720
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ggtttgagac	tggatacagc	cgaagaaatt	gcgcttttca	ggtacgatga	acccattcag	780
gggaaagaga	tcaaacggtt	tccggaatat	gcaaaggctc	tgatcggcgc	actaatgcag	840
gtgcaggaaa	acatacatct	ccacagtgac	gactggcagc	gtacgctgta	tatcaatacc	900
ctggatgtaa	aaaccacaga	ttttgaatta	accgatgaga	aaaaaaagga	actggtagaa	960
cagggaatcc	ttggcgcgga	aacctatttc	aaatggtttg	aagacaggga	tgaagtagtt	1020
gtaaaccgcc	ttgcttag					1038

<210> 96  
 <211> 345  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 96

Met	Ala	Ser	Gln	Phe	Arg	Asn	Leu	Val	Phe	Glu	Gly	Gly	Gly	Val	Lys
1				5					10					15	
Gly	Ile	Ala	Tyr	Ile	Gly	Ala	Met	Gln	Val	Leu	Asp	Gln	Arg	Gly	Tyr
			20					25					30		
Leu	Gly	Asp	Asn	Ile	Lys	Arg	Val	Gly	Gly	Thr	Ser	Ala	Gly	Ala	Ile
		35					40					45			
Asn	Ala	Leu	Ile	Tyr	Ser	Leu	Gly	Tyr	Asp	Ile	His	Glu	Gln	Gln	Glu
	50					55				60					
Ile	Leu	Asn	Ser	Thr	Asp	Phe	Lys	Lys	Phe	Met	Asp	Asn	Ser	Phe	Gly
65				70					75					80	
Phe	Val	Arg	Asp	Phe	Arg	Arg	Leu	Trp	Asn	Glu	Phe	Gly	Trp	Asn	Arg
			85					90					95		
Gly	Asp	Phe	Phe	Leu	Lys	Trp	Ser	Gly	Glu	Leu	Ile	Lys	Asn	Lys	Leu
			100					105					110		
Gly	Thr	Ser	Lys	Ala	Thr	Phe	Gln	Asp	Leu	Lys	Asp	Ala	Gly	Gln	Pro
		115					120					125			
Asp	Leu	Tyr	Val	Ile	Gly	Thr	Asn	Leu	Ser	Thr	Gly	Phe	Ser	Glu	Thr
	130					135					140				
Phe	Ser	Tyr	Glu	Arg	His	Pro	Asp	Met	Thr	Leu	Ala	Glu	Ala	Val	Arg
145				150					155						160
Ile	Ser	Met	Ser	Leu	Pro	Leu	Phe	Phe	Arg	Ala	Val	Arg	Leu	Gly	Asp
			165					170						175	
Arg	Asn	Asp	Val	Tyr	Val	Asp	Gly	Gly	Val	Gln	Leu	Asn	Tyr	Pro	Val
		180						185					190		
Lys	Leu	Phe	Asp	Arg	Glu	Lys	Tyr	Ile	Asp	Met	Asp	Asn	Glu	Ala	Ala
	195						200					205			
Ala	Ala	Arg	Phe	Thr	Asp	Tyr	Tyr	Asn	Lys	Glu	Asn	Ala	Arg	Phe	Ser
	210					215					220				
Leu	Gln	Arg	Pro	Gly	Arg	Ser	Pro	Tyr	Val	Tyr	Asn	Arg	Gln	Thr	Leu
225				230					235						240
Gly	Leu	Arg	Leu	Asp	Thr	Ala	Glu	Glu	Ile	Ala	Leu	Phe	Arg	Tyr	Asp
			245					250						255	
Glu	Pro	Ile	Gln	Gly	Lys	Glu	Ile	Lys	Arg	Phe	Pro	Glu	Tyr	Ala	Lys
		260						265					270		
Ala	Leu	Ile	Gly	Ala	Leu	Met	Gln	Val	Gln	Glu	Asn	Ile	His	Leu	His
	275					280						285			
Ser	Asp	Asp	Trp	Gln	Arg	Thr	Leu	Tyr	Ile	Asn	Thr	Leu	Asp	Val	Lys
	290					295					300				
Thr	Thr	Asp	Phe	Glu	Leu	Thr	Asp	Glu	Lys	Lys	Lys	Glu	Leu	Val	Glu
305				310					315						320
Gln	Gly	Ile	Leu	Gly	Ala	Glu	Thr	Tyr	Phe	Lys	Trp	Phe	Glu	Asp	Arg
			325					330						335	
Asp	Glu	Val	Val	Val	Asn	Arg	Leu	Ala							
		340					345								

<210> 97  
 <211> 1422  
 <212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 97

atgaaaagga	aactatgtac	atgggctctc	gtaacagcaa	tagcttctag	tactgcggtg	60
attccaacag	cagcagaagc	ttgtggatta	ggagaagtaa	tcaaacaaga	gaatcaagag	120
cacaaacgtg	tgaaaagatg	gtctgcggtg	catccgcctc	attcacatga	aagtacccat	180
ttatggattg	cacaaaatgc	gattcaaatt	atgagccgta	atcaagataa	gacggttcaa	240
gaaaatgaat	tacaattttt	aaataccoct	gaatataagg	agttatttga	aagagggtct	300
tatgatgctg	attaccttga	tgaattttaac	gatggaggta	caggtataat	cggcattgat	360
gggctaattc	gaggagggtg	gaaatctcat	ttctacgac	ccgatacaag	aaagaactat	420
aaaggggagg	aagaaccaac	agctctttct	caaggagata	aatattttta	attagcaggt	480
gaatacttta	agaagaatga	ttggaaacag	gctttctatt	atttaggtgt	tgcgacgcac	540
tactttacag	atgctactca	gccaatgcat	gctgctaatt	ttacagctgt	cgacaggagt	600
gctataaagt	ttcatagtgc	ttttgaagat	tatgtgacga	caattcagga	acagtttaaa	660
gtatcagatg	gagagggaaa	atataattta	gtaaattcta	atgatccgaa	acagtggatc	720
catgaaacag	cgagactcgc	aaaagtggaa	atcgggaaca	ttaccaatga	tgtgattaaa	780
tctcactata	ataaaggaaa	caatgctctt	tggcagcaag	aagttatgcc	agctgttcag	840
agaagtttag	aacaagccca	aagaaatacg	gcgggattta	ttcatttatg	gtttaaaaca	900
tatgttggaa	aaacagctgc	tgaagatatt	gaaaatacta	tagtgaaaga	ttctagggga	960
gaagcaatac	aagagaataa	aaaatacttt	gtagtaccaa	gtgagttttt	aaatagaggc	1020
ttaacatttg	aagtgtatgc	tgcttatgac	tatgctgtat	tatctaacca	tgtggatgat	1080
aataatattc	atggtacacc	ggttcaaatt	gtatttgata	aagaaaataa	tgggatcctt	1140
catcaaggag	aaagtgcatt	gttaaagatg	acacaatcca	actacgataa	ttatgtattt	1200
ctaaattatt	ctatcataac	aaattgggta	catcttgcaa	aaagagaaaa	caatactgca	1260
cagtttaaag	tgtatccaaa	tccaaataat	ccaactgaat	atttcataata	tacagatggc	1320
tatccagtta	attatcaaga	aaaaggtaaa	gagaaaagct	ggattgtttt	aggaaagaaa	1380
acggataaac	caaaagcatg	gaaattttata	caggcggaat	aa		1422

<210> 98

<211> 473

<212> PRT

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<221> SIGNAL

<222> (1)...(25)

<400> 98

Met	Lys	Arg	Lys	Leu	Cys	Thr	Trp	Ala	Leu	Val	Thr	Ala	Ile	Ala	Ser
1				5					10					15	
Ser	Thr	Ala	Val	Ile	Pro	Thr	Ala	Ala	Glu	Ala	Cys	Gly	Leu	Gly	Glu
			20					25					30		
Val	Ile	Lys	Gln	Glu	Asn	Gln	Glu	His	Lys	Arg	Val	Lys	Arg	Trp	Ser
		35					40					45			
Ala	Glu	His	Pro	His	His	Ser	His	Glu	Ser	Thr	His	Leu	Trp	Ile	Ala
	50					55					60				
Gln	Asn	Ala	Ile	Gln	Ile	Met	Ser	Arg	Asn	Gln	Asp	Lys	Thr	Val	Gln
65					70				75					80	
Glu	Asn	Glu	Leu	Gln	Phe	Leu	Asn	Thr	Pro	Glu	Tyr	Lys	Glu	Leu	Phe
			85						90					95	
Glu	Arg	Gly	Leu	Tyr	Asp	Ala	Asp	Tyr	Leu	Asp	Glu	Phe	Asn	Asp	Gly
			100					105					110		
Gly	Thr	Gly	Ile	Ile	Gly	Ile	Asp	Gly	Leu	Ile	Arg	Gly	Gly	Trp	Lys
		115					120					125			
Ser	His	Phe	Tyr	Asp	Pro	Asp	Thr	Arg	Lys	Asn	Tyr	Lys	Gly	Glu	Glu
	130					135					140				
Glu	Pro	Thr	Ala	Leu	Ser	Gln	Gly	Asp	Lys	Tyr	Phe	Lys	Leu	Ala	Gly
145					150					155					160
Glu	Tyr	Phe	Lys	Lys	Asn	Asp	Trp	Lys	Gln	Ala	Phe	Tyr	Tyr	Leu	Gly



				165						170						175			
Val	Ala	Thr	His	Tyr	Phe	Thr	Asp	Ala	Thr	Gln	Pro	Met	His	Ala	Ala				
			180					185					190						
Asn	Phe	Thr	Ala	Val	Asp	Arg	Ser	Ala	Ile	Lys	Phe	His	Ser	Ala	Phe				
		195					200					205							
Glu	Asp	Tyr	Val	Thr	Thr	Ile	Gln	Glu	Gln	Phe	Lys	Val	Ser	Asp	Gly				
	210					215					220								
Glu	Gly	Lys	Tyr	Asn	Leu	Val	Asn	Ser	Asn	Asp	Pro	Lys	Gln	Trp	Ile				
225					230					235					240				
His	Glu	Thr	Ala	Arg	Leu	Ala	Lys	Val	Glu	Ile	Gly	Asn	Ile	Thr	Asn				
				245						250					255				
Asp	Val	Ile	Lys	Ser	His	Tyr	Asn	Lys	Gly	Asn	Asn	Ala	Leu	Trp	Gln				
			260					265					270						
Gln	Glu	Val	Met	Pro	Ala	Val	Gln	Arg	Ser	Leu	Glu	Gln	Ala	Gln	Arg				
	275						280					285							
Asn	Thr	Ala	Gly	Phe	Ile	His	Leu	Trp	Phe	Lys	Thr	Tyr	Val	Gly	Lys				
290					295						300								
Thr	Ala	Ala	Glu	Asp	Ile	Glu	Asn	Thr	Ile	Val	Lys	Asp	Ser	Arg	Gly				
305					310					315					320				
Glu	Ala	Ile	Gln	Glu	Asn	Lys	Lys	Tyr	Phe	Val	Val	Pro	Ser	Glu	Phe				
			325						330					335					
Leu	Asn	Arg	Gly	Leu	Thr	Phe	Glu	Val	Tyr	Ala	Ala	Tyr	Asp	Tyr	Ala				
			340				345					350							
Leu	Leu	Ser	Asn	His	Val	Asp	Asp	Asn	Asn	Ile	His	Gly	Thr	Pro	Val				
	355						360					365							
Gln	Ile	Val	Phe	Asp	Lys	Glu	Asn	Asn	Gly	Ile	Leu	His	Gln	Gly	Glu				
370					375					380									
Ser	Ala	Leu	Leu	Lys	Met	Thr	Gln	Ser	Asn	Tyr	Asp	Asn	Tyr	Val	Phe				
385					390				395					400					
Leu	Asn	Tyr	Ser	Ile	Ile	Thr	Asn	Trp	Val	His	Leu	Ala	Lys	Arg	Glu				
			405					410						415					
Asn	Asn	Thr	Ala	Gln	Phe	Lys	Val	Tyr	Pro	Asn	Pro	Asn	Asn	Pro	Thr				
			420					425					430						
Glu	Tyr	Phe	Ile	Tyr	Thr	Asp	Gly	Tyr	Pro	Val	Asn	Tyr	Gln	Glu	Lys				
	435					440					445								
Gly	Lys	Glu	Lys	Ser	Trp	Ile	Val	Leu	Gly	Lys	Lys	Thr	Asp	Lys	Pro				
	450				455						460								
Lys	Ala	Trp	Lys	Phe	Ile	Gln	Ala	Glu											
465					470														

<210> 99

<211> 1053

<212> DNA

<213> Unknown

<220>

<223> Obtained from an environmental sample.

<400> 99

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atgatcgccg	ggacatccac	cggcggcatc	attgcggcgg	ggctgacatg	cccgcatacct	180
gacgatgagg	agacggcggc	gtgcacgccg	accgatcttc	tcaagcttta	tgtcgatcac	240
ggcggcaaga	tcttcgagaa	aaacccgatc	ctcggcctca	tcaacccatt	cggcctcaac	300
gatccgcgct	accagccaga	tgagctggaa	aacaggctga	aggcgcagct	cggcttgacg	360
gcgacgctcg	ataaagggct	caccaagggtg	ctgatcacgg	cctatgatat	ccagcagcgg	420
caggcgctgt	tcatggcaaa	caccgacaac	gagaacagca	atttccgcta	ctgggaggca	480
gcgcggggcg	catcggccgc	acccacctat	tttccgccgg	cgctgatcga	aagggttggc	540
gagaagaaca	aggacaagcg	cttcgtgcc	ttgatcgacg	gcggcgctct	cgccaacgat	600
cctatccttg	ccgcctatgt	ggaggcgcg	aagcagaaat	ggggcaatga	cgagctcggt	660
ttcctgtcgc	ttggtaccgg	ccagcaaaac	cgcccgatcg	cctatcagga	ggccaagggc	720
tggggcattt	taggctggat	gcagccgtct	catgacacgc	cgctgatctc	gatcctgatg	780
cagggacagg	cgagcaccgc	ctcctatcag	gccaatgcgc	tgctcaatcc	gcccggcacc	840
aagatcgact	attcgaccgt	ggtgacgaag	gacaacgcgg	cttcgctcag	ctatttcctg	900

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ctcgaccggc agctgagctc gaaggagaac gacgcgctgg acgacgcac gcccgaaaac      960
atcagggcgc tgaaggcaat cgccgcgcaa atcatcaagg ataacgcgcc ggcgctcgac      1020
gaaatcgcca aacgcacctt ggccaaccaa taa                                     1053

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<210> 100
<211> 350
<212> PRT
<213> Unknown

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<220>
<223> Obtained from an environmental sample.

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<400> 100
Met Ala Lys Arg Phe Ile Leu Ser Ile Asp Gly Gly Gly Ile Arg Gly
 1           5           10          15
Ile Ile Pro Ala Ala Ile Leu Val Glu Leu Ala Lys Arg Leu Glu Gly
      20          25          30
Leu Pro Leu His Lys Ala Phe Asp Met Ile Ala Gly Thr Ser Thr Gly
      35          40          45
Gly Ile Ile Ala Ala Gly Leu Thr Cys Pro His Pro Asp Asp Glu Glu
      50          55          60
Thr Ala Ala Cys Thr Pro Thr Asp Leu Leu Lys Leu Tyr Val Asp His
      65          70          75          80
Gly Gly Lys Ile Phe Glu Lys Asn Pro Ile Leu Gly Leu Ile Asn Pro
      85          90          95
Phe Gly Leu Asn Asp Pro Arg Tyr Gln Pro Asp Glu Leu Glu Asn Arg
      100         105         110
Leu Lys Ala Gln Leu Gly Leu Thr Ala Thr Leu Asp Lys Gly Leu Thr
      115         120         125
Lys Val Leu Ile Thr Ala Tyr Asp Ile Gln Gln Arg Gln Ala Leu Phe
      130         135         140
Met Ala Asn Thr Asp Asn Glu Asn Ser Asn Phe Arg Tyr Trp Glu Ala
      145         150         155         160
Ala Arg Ala Thr Ser Ala Ala Pro Thr Tyr Phe Pro Pro Ala Leu Ile
      165         170         175
Glu Arg Val Gly Glu Lys Asn Lys Asp Lys Arg Phe Val Pro Leu Ile
      180         185         190
Asp Gly Gly Val Phe Ala Asn Asp Pro Ile Leu Ala Ala Tyr Val Glu
      195         200         205
Ala Arg Lys Gln Lys Trp Gly Asn Asp Glu Leu Val Phe Leu Ser Leu
      210         215         220
Gly Thr Gly Gln Gln Asn Arg Pro Ile Ala Tyr Gln Glu Ala Lys Gly
      225         230         235         240
Trp Gly Ile Leu Gly Trp Met Gln Pro Ser His Asp Thr Pro Leu Ile
      245         250         255
Ser Ile Leu Met Gln Gly Gln Ala Ser Thr Ala Ser Tyr Gln Ala Asn
      260         265         270
Ala Leu Leu Asn Pro Pro Gly Thr Lys Ile Asp Tyr Ser Thr Val Val
      275         280         285
Thr Lys Asp Asn Ala Ala Ser Leu Ser Tyr Phe Arg Leu Asp Arg Gln
      290         295         300
Leu Ser Ser Lys Glu Asn Asp Ala Leu Asp Asp Ala Ser Pro Glu Asn
      305         310         315         320
Ile Arg Ala Leu Lys Ala Ile Ala Ala Gln Ile Ile Lys Asp Asn Ala
      325         330         335
Pro Ala Leu Asp Glu Ile Ala Lys Arg Ile Leu Ala Asn Gln
      340         345         350

```

```

<210> 101
<211> 996
<212> DNA
<213> Bacteria

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<400> 101

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gccgccaccc tggcctgtac cgcgcagggc gcgaccgccg cccccgccgc ggccgcgcgc 120
gaggccccgc ggctcaaggt gctcacgtac aacacgttcc tgttctcgaa gacgtcttac 180
ccgaactggg gccaggacca ccgggccaaag gcgatcccca ccgccccctt ctaccagggc 240
caggacgtcg tggctctcca ggaggccttc gacaactccg cgtcggacgc cctcaaggcg 300
aactccgccg gccagtaccc ctaccagacc cccgtcgtgg gccgcggcac cggcggctgg 360
gacgccaccg gcgggtccta ctctctgacc acccccgagg acggcggcgt gacgatcctc 420
agcaagtggc cgatcgtccg caaggagcag tacgtctaca aggacgcgtg cggcgccgac 480
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gtcctcggca cccacgccc gtccaccgac ccgggctgct cggcgggcga ggcggtgcag 600
atgcggagcc gccagttcaa ggcgatcgac gccttcctcg acgccaagaa catcccgcg 660
ggcgagcagg tgatcgtcgc cggcgacatg aacgtcgact cgcgcacgcc cgagtacggc 720
accatgctcg ccgacgcgg tctggcggcg gccgacgcgc gcaccggcca cccgtactcc 780
ttcgacaccg agctgaactc gatcgccctc gagcgctacc cggacgacct gcgcgaggac 840
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gtcctggaga agagcgcgcc gtggaccgtc tccagctggg gcaagagcta cacctacacc 960
aacctctccg accactaccc ggtcaccggc ttctga 996

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<210> 102

<211> 331

<212> PRT

<213> Bacteria

<220>

<221> SIGNAL

<222> (1)...(39)

<400> 102

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Leu Ser Leu Val Ala Ser Leu Arg Arg Ala Pro Gly Ala Ala Leu Ala
 1          5          10         15
Leu Ala Leu Ala Ala Ala Thr Leu Ala Val Thr Ala Gln Gly Ala Thr
 20         25         30
Ala Ala Pro Ala Ala Ala Ala Glu Ala Pro Arg Leu Lys Val Leu
 35         40         45
Thr Tyr Asn Thr Phe Leu Phe Ser Lys Thr Leu Tyr Pro Asn Trp Gly
 50         55         60
Gln Asp His Arg Ala Lys Ala Ile Pro Thr Ala Pro Phe Tyr Gln Gly
 65         70         75         80
Gln Asp Val Val Val Leu Gln Glu Ala Phe Asp Asn Ser Ala Ser Asp
 85         90         95
Ala Leu Lys Ala Asn Ser Ala Gly Gln Tyr Pro Tyr Gln Thr Pro Val
 100        105        110
Val Gly Arg Gly Thr Gly Gly Trp Asp Ala Thr Gly Gly Ser Tyr Ser
 115        120        125
Ser Thr Thr Pro Glu Asp Gly Gly Val Thr Ile Leu Ser Lys Trp Pro
 130        135        140
Ile Val Arg Lys Glu Gln Tyr Val Tyr Lys Asp Ala Cys Gly Ala Asp
 145        150        155        160
Trp Trp Ser Asn Lys Gly Phe Ala Tyr Val Val Leu Asn Val Asn Gly
 165        170        175
Ser Lys Val His Val Leu Gly Thr His Ala Gln Ser Thr Asp Pro Gly
 180        185        190
Cys Ser Ala Gly Glu Ala Val Gln Met Arg Ser Arg Gln Phe Lys Ala
 195        200        205
Ile Asp Ala Phe Leu Asp Ala Lys Asn Ile Pro Ala Gly Glu Gln Val
 210        215        220
Ile Val Ala Gly Asp Met Asn Val Asp Ser Arg Thr Pro Glu Tyr Gly
 225        230        235        240
Thr Met Leu Ala Asp Ala Gly Leu Ala Ala Ala Asp Ala Arg Thr Gly
 245        250        255
His Pro Tyr Ser Phe Asp Thr Glu Leu Asn Ser Ile Ala Ser Glu Arg
 260        265        270
Tyr Pro Asp Asp Pro Arg Glu Asp Leu Asp Tyr Val Leu Tyr Arg Ala
 275        280        285

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Gly Asn Ala Arg Pro Ala Asn Trp Thr Asn Asn Val Val Leu Glu Lys  
 290 295 300  
 Ser Ala Pro Trp Thr Val Ser Ser Trp Gly Lys Ser Tyr Thr Tyr Thr  
 305 310 315 320  
 Asn Leu Ser Asp His Tyr Pro Val Thr Gly Phe  
 325 330

<210> 103  
 <211> 2205  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 103  
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 agtttttcgg gtggtgcgct tctcaagacc atcgagctgc tgcagcacac tgcccgcggt 120  
 ccggcgaaaga tcgatgtcgt gaccgggtgcc tccggcgga gcatgacgct gggcgtagtc 180  
 atctaccacc tcatgcgggg atcgtcgacc gatgagattc tccgcgatct gaggcggtcg 240  
 tgggtggaat tgatctcggt cgacggcctc tgtccgccga acctgtcccg tcacgacaag 300  
 ccgagcctgt tttccgatga gatcgctccg aagatcgcg ccaccgtcat cgatatgggg 360  
 cgcaagctcg agggcggtcc tcatccgctt ttcgccgacg aactcgtagc ctcgttcgca 420  
 ctgacgaacc tgaacggcat ccccgcccgt acggagggcc agctcatccg gcaggcaaag 480  
 ggaggcgag ggtccgagaa gggctcgaaa tccgttttcg ccgacgccgt gcagactacc 540  
 tttcaccacg acgtgatgcg attcggtgtg cggcgcgatc acaacgggca aggcagcctg 600  
 ttcgacagcc gttaccgggc acgcatactc cctccatgga atgttgggaa gggcggcgat 660  
 gcatgggaag cttttcgcac ggcggtgtt gcctcgggg cgtttcggc cgcatttcct 720  
 cccgtcgaga tcagccgcaa ccgcgacgaa ttcaacatct ggcccgatcg catcgaggac 780  
 cagaaggcat ttacgttcga ttacgtggac ggcggggtac ttcgcaacga acccctcggg 840  
 gaggcgattc acctggccgc gctgcgcgat gagggagcga cggacatcga gcgtgtgttc 900  
 atcctcatcg acccgaacat cagcggcacc ggcgaggtct tcccgctctc ctataaccag 960  
 cagatgcgga tcaagccgaa ctacgattcc aacggcgacg tccgacagta cgatctcgat 1020  
 gtgccggact acaccggcaa tctgatcggg gcgatcggtc ggctgggttc ggtgatcgtc 1080  
 gggcaggcga cgttccgcga ctggctcaag gctgccaaag tgaacagcca gatcgagtgg 1140  
 cgacgggaat tgctgcccat tctccgcgac ctgaaccgga accccgggga ggaggcgcg 1200  
 aggggcgtga acgggatgat cgacaagatc taccggcaaa agtatcagcg cgcctcagag 1260  
 tcaaagagcg ttccggtcga ggaggtggaa cggcgcggtg ccgaagacat cgaacgggac 1320  
 ctggcgcggc gccgttcgga ggccggcgac aacgacttca ttgcccggt cctcctgctc 1380  
 gtcgacctga tcggcaacct gcgtgagaag cagaagctga acatggtggc gatcaccccc 1440  
 gcttcgcgc cgcacaacga cgggcgcccc ttgccgctgg ccggcaattt tatgttcagc 1500  
 ttcggggggg tcttcaggga ggagtacagg caatacgact tctcggtcgg cgaattcgca 1560  
 gcatggaacg tcttgagcac gccggcctcc gagacgccct ttcttgccga gaccgccccg 1620  
 aaaccgccc cccgacctcc ccagccgccg gcaatcaatc ctacctaccg ctactcggc 1680  
 ccgcccattc agcagcggtt cgaggagttc gttcgtgggc acgttcgcgc ctttatcgct 1740  
 tcggtcgctc cgctgggaac gagaggatc gtcacgggca agattggcgg aaagcttcga 1800  
 acgatgctga tggcctcgcg caacgggaaa tcagagtact tccggcttcg cctctcggc 1860  
 gttgacgggc tctacctcgg aggtccaag ggccgcaacc tgagggcggt taacggatcg 1920  
 atcgacacgg tcgtcggcgt ctatatcgac gaggaagatc agcaccgca tgagtttttc 1980  
 ggtcccatg tcttcggcgc gaacggctca ggctttacga tggaaactat ggagtcggc 2040  
 ggttttttcg ggcgtgatcg tcgctcgct gtgatcgagt tggagaacaa ccccgggcg 2100  
 ttcgcaatcg ccgccggatg caggcgcgcg cccggcggtg tgctggatat ggccaggcgt 2160  
 aacgggcagc cactgcggac ggtgatgtg atggaatttg cgtga 2205

<210> 104  
 <211> 734  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 104  
 Met Ser Glu Lys Lys Glu Ile Arg Val Ala Leu Ile Met Gly Gly Gly

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Val	Ser	Leu	Gly	Ser	Phe	Ser	Gly	Gly	Ala	Leu	Leu	Lys	Thr	Ile	Glu		
			20					25					30				
Leu	Leu	Gln	His	Thr	Ala	Arg	Gly	Pro	Ala	Lys	Ile	Asp	Val	Val	Thr		
		35					40					45					
Gly	Ala	Ser	Ala	Gly	Ser	Met	Thr	Leu	Gly	Val	Val	Ile	Tyr	His	Leu		
	50					55					60						
Met	Arg	Gly	Ser	Ser	Thr	Asp	Glu	Ile	Leu	Arg	Asp	Leu	Arg	Arg	Ser		
65					70					75					80		
Trp	Val	Glu	Met	Ile	Ser	Phe	Asp	Gly	Leu	Cys	Pro	Pro	Asn	Leu	Ser		
				85					90					95			
Arg	His	Asp	Lys	Pro	Ser	Leu	Phe	Ser	Asp	Glu	Ile	Val	Arg	Lys	Ile		
			100					105					110				
Ala	Ala	Thr	Val	Ile	Asp	Met	Gly	Arg	Lys	Leu	Glu	Ala	Ala	Pro	His		
		115					120					125					
Pro	Leu	Phe	Ala	Asp	Glu	Leu	Val	Ala	Ser	Phe	Ala	Leu	Thr	Asn	Leu		
	130					135					140						
Asn	Gly	Ile	Pro	Ala	Arg	Thr	Glu	Gly	Gln	Leu	Ile	Arg	Gln	Ala	Lys		
145					150					155					160		
Gly	Gly	Gly	Gly	Ser	Glu	Lys	Gly	Ser	Lys	Ser	Val	Phe	Ala	Asp	Ala		
				165					170					175			
Val	Gln	Thr	Thr	Phe	His	His	Asp	Val	Met	Arg	Phe	Val	Val	Arg	Arg		
			180				185						190				
Asp	His	Asn	Gly	Gln	Gly	Ser	Leu	Phe	Asp	Ser	Arg	Tyr	Arg	Ala	Arg		
		195					200					205					
Ile	Leu	Pro	Pro	Trp	Asn	Val	Gly	Lys	Gly	Gly	Asp	Ala	Trp	Glu	Ala		
	210				215						220						
Phe	Arg	Thr	Ala	Ala	Val	Ala	Ser	Gly	Ala	Phe	Pro	Ala	Ala	Phe	Pro		
225					230					235					240		
Pro	Val	Glu	Ile	Ser	Arg	Asn	Arg	Asp	Glu	Phe	Asn	Ile	Trp	Pro	Asp		
				245					250					255			
Arg	Ile	Glu	Asp	Gln	Lys	Ala	Phe	Thr	Phe	Asp	Tyr	Val	Asp	Gly	Gly		
			260					265					270				
Val	Leu	Arg	Asn	Glu	Pro	Leu	Arg	Glu	Ala	Ile	His	Leu	Ala	Ala	Leu		
	275					280						285					
Arg	Asp	Glu	Gly	Ala	Thr	Asp	Ile	Glu	Arg	Val	Phe	Ile	Leu	Ile	Asp		
	290					295					300						
Pro	Asn	Ile	Ser	Gly	Thr	Gly	Glu	Val	Phe	Pro	Leu	Ser	Tyr	Asn	Gln		
305					310					315					320		
Gln	Met	Arg	Ile	Lys	Pro	Asn	Tyr	Asp	Ser	Asn	Gly	Asp	Val	Arg	Gln		
				325					330					335			
Tyr	Asp	Leu	Asp	Val	Pro	Asp	Tyr	Thr	Gly	Asn	Leu	Ile	Gly	Ala	Ile		
			340					345					350				
Gly	Arg	Leu	Gly	Ser	Val	Ile	Val	Gly	Gln	Ala	Thr	Phe	Arg	Asp	Trp		
		355					360					365					
Leu	Lys	Ala	Ala	Lys	Val	Asn	Ser	Gln	Ile	Glu	Trp	Arg	Arg	Glu	Leu		
	370					375					380						
Leu	Pro	Ile	Leu	Arg	Asp	Leu	Asn	Pro	Asn	Pro	Gly	Glu	Glu	Ala	Arg		
385					390					395					400		
Arg	Gly	Val	Asn	Gly	Met	Ile	Asp	Lys	Ile	Tyr	Arg	Gln	Lys	Tyr	Gln		
				405					410					415			
Arg	Ala	Leu	Glu	Ser	Lys	Ser	Val	Pro	Val	Glu	Glu	Val	Glu	Arg	Arg		
			420					425					430				
Val	Ala	Glu	Asp	Ile	Glu	Arg	Asp	Leu	Ala	Arg	Arg	Arg	Ser	Glu	Ala		
		435					440					445					
Gly	Asp	Asn	Asp	Phe	Ile	Ala	Arg	Leu	Leu	Leu	Leu	Val	Asp	Leu	Ile		
	450					455					460						
Gly	Asn	Leu	Arg	Glu	Lys	Gln	Lys	Leu	Asn	Met	Val	Ala	Ile	Thr	Pro		
465					470					475					480		
Ala	Ser	Ala	Pro	His	Asn	Asp	Gly	Arg	Pro	Leu	Pro	Leu	Ala	Gly	Asn		
				485					490					495			
Phe	Met	Phe	Ser	Phe	Gly	Gly	Phe	Phe	Arg	Glu	Glu	Tyr	Arg	Gln	Tyr		
			500					505					510				
Asp	Phe	Ser	Val	Gly	Glu	Phe	Ala	Ala	Trp	Asn	Val	Leu	Ser	Thr	Pro		

	515		520		525										
Ala	Ser	Glu	Thr	Pro	Phe	Leu	Ala	Glu	Thr	Ala	Pro	Lys	Pro	Pro	Ala
	530					535					540				
Arg	Pro	Pro	Gln	Pro	Pro	Ala	Ile	Asn	Pro	Thr	Tyr	Arg	Ser	Leu	Gly
545						550				555					560
Pro	Pro	Ile	Gln	Gln	Arg	Phe	Glu	Glu	Phe	Val	Arg	Gly	His	Val	Arg
					565					570					575
Ala	Phe	Ile	Ala	Ser	Val	Ala	Pro	Leu	Gly	Thr	Arg	Gly	Ile	Val	Thr
			580						585				590		
Gly	Lys	Ile	Gly	Gly	Lys	Leu	Arg	Thr	Met	Leu	Met	Ala	Ser	Arg	Asn
		595					600					605			
Gly	Lys	Ser	Glu	Tyr	Phe	Arg	Leu	Arg	Leu	Ser	Gly	Val	Asp	Gly	Leu
	610					615					620				
Tyr	Leu	Arg	Gly	Ser	Lys	Gly	Arg	Asn	Leu	Arg	Ala	Val	Asn	Gly	Ser
625					630					635					640
Ile	Asp	Thr	Val	Val	Gly	Val	Tyr	Ile	Asp	Glu	Glu	Asp	Gln	His	Arg
					645					650					655
Asp	Glu	Phe	Phe	Gly	Pro	His	Val	Phe	Gly	Ala	Asn	Gly	Ser	Gly	Phe
			660						665				670		
Thr	Met	Glu	Leu	Trp	Glu	Ser	Arg	Gly	Phe	Phe	Gly	Arg	Asp	Arg	Arg
		675					680					685			
Val	Ala	Val	Ile	Glu	Leu	Glu	Asn	Asn	Pro	Gly	Gly	Phe	Ala	Ile	Ala
	690					695					700				
Ala	Gly	Cys	Arg	Arg	Arg	Pro	Gly	Val	Val	Leu	Asp	Met	Ala	Arg	Arg
705					710					715					720
Asn	Gly	Gln	Pro	Leu	Arg	Thr	Val	Asp	Val	Met	Glu	Phe	Ala		
				725					730						

<210> 105  
 <211> 756  
 <212> DNA  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<400> 105						
atgaaccggt	gtcgggaactc	actcaacctc	caacttcgcg	cggtgaccgt	ggcggcggtg	60
gtagtcgtcg	catcctcggc	cgcgctggcg	tgggacagcg	cctcgcgcaa	tccgacccat	120
cccaccacaca	gctacctcac	cgaatacgcc	atcgatcagc	ttgggggtggc	gcggccggag	180
ctccggcaat	accgcaagca	gatcatcgag	ggcgccaaca	ccgagctgca	cgaactgccca	240
gtcaagggga	cggcctatgg	cctcgacctc	gacgccaagc	ggcgggaaca	ccgcggcacc	300
aatgccggga	cagacgacat	cgccggctgg	tgggcggaaa	gcctccaagc	ctatcgcgcc	360
ggtgccaaag	aacgcgccta	cttcgtgctg	ggggtggtgc	tgcacatggt	cgaggacatg	420
ggcgtgccgg	cgcacgcgaa	cggcgtctac	caccagggca	acctgactga	attcgacaat	480
ttcgagttca	tgggactgtc	gaactggaag	ccctcttttcg	ccgacatcaa	ccggaccgat	540
ccgggctacg	ccgaccgcgc	gcgctactac	gagttcagcc	gagattggac	ggcggcagac	600
gcaccgggct	atcgcgaccg	cgacagcttc	tcgaagacct	gggttctcgc	cagcccggcc	660
gaacgtcagc	tgcttcagaa	ccgccagggc	cggaccgcca	cggtcgccat	gtgggcgtta	720
cggagcgcga	cgaaggcggt	cgccgggaaa	ccctag			756

<210> 106  
 <211> 251  
 <212> PRT  
 <213> Unknown

<220>  
 <223> Obtained from an environmental sample.

<221> SIGNAL  
 <222> (1)...(30)

<400> 106  
 Met Asn Arg Cys Arg Asn Ser Leu Asn Leu Gln Leu Arg Ala Val Thr

1				5					10					15		
Val	Ala	Ala	Leu	Val	Val	Val	Ala	Ser	Ser	Ala	Ala	Leu	Ala	Trp	Asp	
			20					25					30			
Ser	Ala	Ser	Arg	Asn	Pro	Thr	His	Pro	Thr	His	Ser	Tyr	Leu	Thr	Glu	
		35					40					45				
Tyr	Ala	Ile	Asp	Gln	Leu	Gly	Val	Ala	Arg	Pro	Glu	Leu	Arg	Gln	Tyr	
	50					55					60					
Arg	Lys	Gln	Ile	Ile	Glu	Gly	Ala	Asn	Thr	Glu	Leu	His	Glu	Leu	Pro	
65					70					75					80	
Val	Lys	Gly	Thr	Ala	Tyr	Gly	Leu	Asp	Leu	Asp	Ala	Lys	Arg	Arg	Glu	
				85					90					95		
His	Arg	Gly	Thr	Asn	Ala	Gly	Thr	Asp	Asp	Ile	Ala	Gly	Trp	Trp	Ala	
			100					105					110			
Glu	Ser	Leu	Gln	Ala	Tyr	Arg	Ala	Gly	Ala	Lys	Glu	Arg	Ala	Tyr	Phe	
		115					120					125				
Val	Leu	Gly	Val	Val	Leu	His	Met	Val	Glu	Asp	Met	Gly	Val	Pro	Ala	
	130					135					140					
His	Ala	Asn	Gly	Val	Tyr	His	Gln	Gly	Asn	Leu	Thr	Glu	Phe	Asp	Asn	
145					150					155					160	
Phe	Glu	Phe	Met	Gly	Leu	Ser	Asn	Trp	Lys	Pro	Ser	Phe	Ala	Asp	Ile	
			165						170					175		
Asn	Arg	Thr	Asp	Pro	Gly	Tyr	Ala	Asp	Pro	Ser	Arg	Tyr	Tyr	Glu	Phe	
			180					185					190			
Ser	Arg	Asp	Trp	Thr	Ala	Ala	Asp	Ala	Pro	Gly	Tyr	Arg	Asp	Arg	Asp	
		195					200					205				
Ser	Phe	Ser	Lys	Thr	Trp	Val	Leu	Ala	Ser	Pro	Ala	Glu	Arg	Gln	Leu	
	210					215					220					
Leu	Gln	Asn	Arg	Gln	Gly	Arg	Thr	Ala	Thr	Val	Ala	Met	Trp	Ala	Leu	
225					230					235					240	
Arg	Ser	Ala	Thr	Lys	Ala	Phe	Ala	Gly	Lys	Pro						
			245						250							